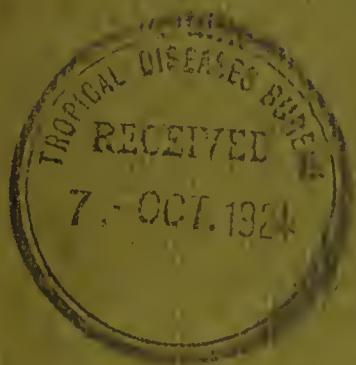
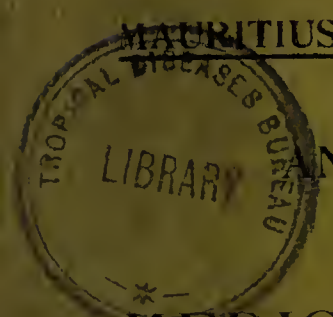


Ed. Clarke V

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MAURITIUS

ANNUAL REPORT

ON THE

MEDICAL & HEALTH

DEPARTMENT

1923



9th Annual (T.D.)

[Detailed Medical & Health Report]

COLONY OF MAURITIUS.

—

ANNUAL REPORT

ON THE

MEDICAL AND HEALTH DEPARTMENT

(1st JANUARY TO 31st DECEMBER 1923)

—

I.—VITAL STATISTICS.

The area of Mauritius is 720 square miles (460,800 acres) and the estimated population on 31st December 1923 was 381,678.

The density of population is very high, being about 530 per square mile for the whole island. For the district of Port Louis, the density per square mile was 3,049 at the Census of 1921 and 3,137, on the estimated population, on 31st December 1923.

The estimated population of the Colony on 31st December 1922 was	- 377,594
The excess of births over deaths in 1923 was - - - - -	- 3,101
The excess of arrivals over departures in 1923 was - - - - -	- 983

The estimated population of the Colony on 31st December 1923 was	- 381,678
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(The estimated population of the dependencies on 31st December 1923 was 8,591).

The distribution of the population and density for each district are shown in Appendix I.

MARRIAGES.

2,075 marriages were celebrated in 1923 against 1,884 in 1922, showing an increase of 191. This is equivalent to a marriage rate (Number of *persons married* to every thousand of population) of 10.9 ‰ against 10.0 in 1922.

BIRTHS.

The total number of births for the year was 13,879 showing a decrease of 76 over the figure for 1922.

The birth rate was 36.8 ‰ against 37.0 ‰ in 1922 and an average of 36.68 ‰ for the quinquennial period 1919–1923 and 36.2 ‰ for the quinquennial period preceding 1923.

The district birth-rate (on population as at 1st January of each year) and the five-year mean rates are as follows:—

District	1919	1920	1921	1922	1923	Mean ‰
Port Louis - - -	34.7	37.3	37.5	37.3	39.9	39.3
Pamplemousses - -	36.3	35.2	39.9	36.0	31.0	36.09
Rivière du Rempart -	37.8	37.3	45.9	37.2	32.6	37.5
Flacq - - -	33.3	33.9	37.1	32.7	34.3	34.6
Grand Port - - -	35.8	34.9	32.9	35.8	36.1	35.3
Savanne - - -	35.9	35.5	35.1	39.3	39.2	36.6
Plaines Wilhems - -	34.6	33.8	39.9	39.7	39.7	37.6
Moka - - -	37.6	35.6	42.4	43.4	42.8	38.9
Black River - - -	28.1	32.6	29.7	26.6	27.3	29.3
Whole Colony - - -	35.2	35.1	38.1	37.0	36.8	36.68

It will be seen that Moka stands first and Black River last on the list. The rates for Pamplemousses and Rivière du Rempart are the lowest for the five years under review and the rates for Port Louis and Grand Port, the highest.

DEATHS.

During the year 1923, the total number of deaths was 10,778 or 2,189 less than in 1922. The death rate for the Colony was 28.5 ‰ compared with a death rate of 34.5 ‰ for 1922 and 42.0 ‰ for the preceding quinquennial period. The month of maximum mortality was July; in 1922 it was April.

The following statement shows the district death rates^(a) yearly for the period 1919-1923 and the average rates for the same period.

District	1919 ^(b)	1920	1921	1922	1923	Average o/oo
Port Louis -	126.9	47.3	53.2	42.6	34.1	63.0
Pamplemousses -	70.5	32.5	40.9	39.0	34.1	43.8
Rivière du Rempart -	46.5	23.1	35.5	37.3	27.9	33.5
Flacq -	62.6	29.9	39.4	35.3	27.8	39.3
Grand Port -	59.1	39.0	42.9	40.8	34.6	43.6
Savanne -	49.5	34.7	42.4	29.4	25.7	36.1
Plaines Wilhems -	47.9	25.2	30.5	23.8	21.0	29.6
Moka -	55.8	27.0	40.9	32.1	25.9	35.6
Black River -	74.4	40.9	41.8	35.2	30.5	45.2
Whole Colony -	64.9 ^(c)	32.3	40.3	34.5	28.5	40.33

The mortality in 1923, it will be noticed, was very low for Mauritius.

The death rate for the whole Colony (28.5 o/oo) is the *lowest since 1891* and for Port Louis, the rate (34.1 o/oo) is the *lowest since 1880* (33.5 o/oo).

The highest death-rate for 1923 is shown in Grand Port and the lowest in Plaines Wilhems.

The number of deaths due to malaria and cachexia (highest death-producing factors in Mauritius) is 1,979 against 3,526 in 1922 or a percentage of 18.3% on total deaths against 27.2 in 1922.

No doubt can be attached to the improvement in the health conditions which these figures denote if it is remembered that in Port Louis no death is registered unless certified by a medical practitioner.

The comparison of the number of deaths due to malaria in Port Louis every year from 1918 to 1923 can therefore but enhance the facts revealed by the returns for the whole Colony:—

Deaths from Malaria in Port Louis

1918	1919	1920	1921	1922	1923
400	518	339	333	371	169

It can therefore boldly be advanced that Mauritius is already remarkably deriving the benefit that was justly expected from the improved and energetic methods of Public Health Campaign started three years ago and pushed on unremittingly.

The next high causes of death are: Pneumonia and Broncho-Pneumonia (1,393 in 1923 against 1,538 the year before) and diseases of early Infancy (1,026 against 1,002 in 1922).

With regard to the causation of deaths, the following table supplies particulars:—

Group	No. of deaths	Rate per o/oo
I. General Diseases - - - - -	4,418	11.7
II. Diseases of the nervous system and of the organs of special sense - - - - -	401	1.1
III. Diseases of the circulatory system - - - - -	206	.5
IV. Diseases of the respiratory system - - - - -	2,039	5.4
V. Diseases of the digestive system - - - - -	995	2.6
VI. Diseases of genito-urinary system and annexa (non-venereal) - - - - -	524	1.4
VII. The puerperal state - - - - -	228	.6
VIII. Diseases of skin and cellular tissues - - - - -	55	.2
IX. Diseases of the bones and of the organs of locomotion - - - - -	8	.0
X. Malformations - - - - -	5	.0
XI. Diseases of early infancy - - - - -	1,026	2.7
XII. Old age - - - - -	213	.6
XIII. Affections produced by external causes - - - - -	129	.3
XIV. Ill-defined causes - - - - -	531	1.4
All causes-	10,778	28.5

^(a) These are crude death rates i.e. deaths irrespective of any consideration as to whether they are indigenous to the district or imported from another district.

^(b) Year of the Influenza Epidemic.

^(c) Or 35.5 excluding deaths from Influenza Epidemic.

The more notable causes of deaths were the following:—

	Number	Percentage to total deaths
Malarial and Malarial Cachexia - - - -	1,979	18.3
Pneumonia and Broncho-pneumonia - - -	1,393	12.9
Influenza - - - - -	556	5.2
Diseases of early infancy - - - - -	1,026	9.5
Pulmonary tuberculosis - - - - -	828	7.7
Diarrhoea and Enteritis - - - - -	625	5.8
Bronchitis - - - - -	521	4.8
Old age - - - - -	213	2.0
Dysentery- - - - -	318	3.0
Albuminuria, Bright's disease, Nephritis and Uræmia - - - - -	498	4.6
Debility (over 1 year and under 70) - - -	357	3.3
Plague - - - - -	118	1.1
Heart diseases (organic) - - - - -	151	1.4
The Puerperal state - - - - -	228	2.1

Deaths due to preventable diseases *i.e.* diseases due to faulty sanitary conditions, over-crowding, soil infection, defective or infective water supplies numbered 4,227.

This figure does not include infantile diarrhoea or infantile convulsions, both probably due to improper dieting and neglect.

II.—INFANTILE MORTALITY

By Infantile Mortality Rate is meant the number of deaths occurring among infants under 1 year per each 1,000 live births registered.

It is a valuable index from the public health point of view and may be described as the index of Community Intelligence, for generally speaking it is found that the better educated and better housed sections of the Community usually show lowest rates.

The rate for 1923 was 139.4 ‰ as against 147.9 and 179.7 in 1922 and 1921 respectively.

Number of deaths under 1 year	...	1,935
" " 1 year and under 2 years	...	689
" " 2 years	3	574
" " 3	4	253
" " 4	5	136
Total	" " under 5 years	3,587

Having regard to the total number of deaths for the year, viz 10,778, the proportion of deaths under 5 years to total deaths is so high as 33.3% whereas it was 29.5% in 1922.

As usual, the most important cause of Infantile Mortality is Congenital Debility.

The number of still-births registered during 1923 is as under:—

District	Males	Females	Total
Port Louis - - -	101	75	176
Pamplemousses - -	58	71	129
Rivière du Rempart -	65	63	128
Flacq - - -	129	101	230
Grand Port - - -	121	110	231
Savanne - - -	71	56	127
Plaines Wilhems - -	185	141	326
Moka - - -	82	79	161
Black River - - -	24	25	49
Total - - -	836	721	1,557

It is equivalent to 112.2 ‰ of live births for the same period against 120.3 ‰ in 1922.

The principal causative factors of Infantile Mortality continue to be: Venereal Diseases, Congenital Debility, Premature Birth, Improper Food and Methods of Feeding.

Many children on birth are mere weaklings and are doomed to early death owing to the early marriages amongst Indians and child-bearing at immature age, work of expectant mothers in the fields, hardships and privations in the poorer classes, apart from the main causes mentioned above.

These causes are *per se* sufficient to lead to death during the later months of gestation.

Infantile Mortality is in every country usually higher among males than among females except in the case of whooping cough.

During 1923, the deaths :

	Males	Females
(i) under 1 year were as under :—	—	—
	1,058	877
(ii) 1 year and under 5 years :	795	857
	<u>1,853</u>	<u>1,734 = 3,587</u>

The highest mortality in 1–5 age period (one year—under 5 years) occurred, as usual, in the age period 1–2 years, gradually decreasing.

III.—MIDWIFERY AND CHILD WELFARE.

During 1923 the questions of proper training of Midwives and of placing gratuitously the services of Government paid Midwives at the disposal of the poor in populous centres were thoroughly reconsidered.

It had been arranged at the close of the year for Government qualified midwives to be made available in every district and township for gratuitous attendance on the poor and a start has been actually made in Curepipe and Beau Bassin—Rose Hill by the appointment of two midwives this year (1924).

Government proposes to provide Rs. 5,000 subsidy the next financial year to the dormant Midwifery and Child Welfare Society.

It is hoped that good progress both from the theoretical, educational, and practical and sanitary points of view will be achieved by the instrumentality of this Society.

The training of Midwives has been put on a more efficient basis and Government has started this year providing funds towards this direction in order to allow of more candidates to be trained than the de Chazal Maternity Fund permitted. A sum of Rs. 5,000 was thus voted in the Estimates for 1923–24 and it is proposed to maintain the same credit in the next financial year's votes.

It was intended at the end of the year to publish notices calling all persons practising as Midwives in every district to give their names and addresses, with a view to ascertaining the approximate number of unqualified midwives practising.

Crèches.—Two Infants' Crèches are maintained in Port Louis, one, the St. Louis Crèche on the Civil Hospital Grounds, a Government Establishment and the other in Edith Cavell Street, Bon Secours Convent's premises, belonging to the Bon Secours Convent Community.

The following statement supplies particulars respecting these two most useful establishments :—

	Capacity of Crèche (No. of beds)	No. of children admitted during year	No. of deaths of children admitted during year	Causes of death
St. Louis Crèche - - - - -	26	51	4	{ 1 Influenza and Diarrhœa, 1 Influenza, 1 Malaria and Enteritis, 1 Enteritis and Influenza.
Bon Secours Convent Crèche	12	30	3	
				1 Fever, 2 Enteritis.

The Riche-en-Eau Sugar Estate Crèche has been maintained in the same high standard of condition during the year. It is also under the care of Sisters of Mercy who attend to an average of 30 children daily.

The public-spirited action of Mr. R. de Rochecouste, principal owner of the Estate could be followed by the principal Estates of the Colony with advantage both to the Estates' interests and for the welfare of the community as it is a source of reduction in the Infantile Mortality.

The Crèche started by the Immigration Department for infants whose mothers do laundry work at the Immigration laundry continued to be a success. As an average 5 infants are received daily and the cost of maintenance is about Rs. 12 per month.

IV.—PREVALENCE OF SICKNESS AND RECURRENCE OF PARTICULAR DISEASES.

The following statement shows in tabular form the number of cases treated in the public hospitals and at the dispensaries for the last five years :—

	1919	1920	1921	1922	1923	Average
Hospital Admissions -	26,820	22,132	19,127	19,337	17,069	20,897
Dispensary cases -	78,546	65,302	60,671	85,638	53,225	68,676.4
Outdoor cases -	5,300	4,225	5,066	6,491	12,032	6,622.8
Total -	<u>110,666</u>	<u>91,659</u>	<u>84,864</u>	<u>111,466</u>	<u>82,326</u>	<u>96,196.2</u>

These figures show a decrease as regards hospital admissions and dispensary cases. The total number of cases is also much below that for 1922 and that for the five-year period 1919–1923.

MALARIA.

Malaria is not a notifiable disease in Mauritius, so the number of cases cannot be accurately given beyond admission for the disease in hospital, treatment at dispensaries and deaths certified by medical practitioners.

The total number of admissions in hospitals for Malaria (Hypertrophy of spleen included) was 1,774, a decrease of 988 over the figure for 1922. The case mortality was 2.1% against 1.5% the previous year and 2.5% in 1921.

The death-rate for Malaria per thousand of population was 5.1 compared with 9.1 for 1922 and 8.6 for the five-year period 1919-23.

The corresponding rates for deaths returned under Malaria and Malarial Cachexia were 5.2 for 1923, 9.3 for 1922 and 8.8 for the quinquennial period 1919-1923.

The following statement shows the admissions for Malaria and Hypertrophy of Spleen and deaths from both causes during the year under review :—

Institution	MALARIA		HYPERTROPHY OF SPLEEN	
	Admissions	Deaths	Admissions	Deaths
Civil Hospital - - -	449	13	90	2
Port Louis Prison - - -	14	...	1	...
Long Mountain Hospital - - -	103	1	45	...
Poudre d'Or Hospital - - -	283	7	...	...
Flacq „ - - -	94	1	10	...
Mahebourg „ - - -	125	9	13	1
Souillac „ - - -	118	...	19	...
Victoria „ - - -	192	4	19	...
Beau Bassin Prison - - -	89	...	4	...
Reformatory - - -	4	...	...	...
Moka Hospital - - -	17	...	15	...
Lunatic Asylum - - -	70	...	...	...
Total - - -	1,558	35	216	3

The return for the last ten years is as under :—

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
2,935	3,728	2,905	2,939	3,262	3,390	2,699	1,554	2,762	1,774

In the public dispensaries a total of 19,268 cases of Malaria were treated against 30,897 the previous year and 14,633 in 1921. This shows a decrease of 11,629 over 1922.

Two new dispensaries were opened during 1923: at Brisée Verdière and Sébastopol in Flacq. Arrangements had been made to open a third one at Grand Sable in Grand Port, in the early days of 1924. A Dispensary for outdoor cases was opened at Victoria Hospital, on the same lines as Dispensaries attached to all the Country District Hospitals (excluding Moka Hospital to which no dispensary is attached). Triolet Dispensary was closed in May, 1923.

The attendances were satisfactory and records were kept of all cases treated.

SPLEEN-EXAMINATIONS AND BLOOD TESTS FOR MALARIAL PARASITES.

Spleen Census of school children continues to be taken twice during the year.

This enumeration by Medical Officers of enlarged spleens or otherwise among school children is regarded as a fairly reliable index of the degree of malaria in a locality and is specially useful for purposes of comparison. The conclusion to be drawn from the examinations made in 1923 is a general decrease in the prevalence of malaria.

The following statement gives the spleen rates for the last five years :—

District	1919	1920	1921	1922	1923
Port Louis - - -	18.8	20.1	13.9	20.8	8.7
Pamplemousses - - -	15.3	15.8	8.3	12.8	25.3
Rivière du Rempart - - -	10.8	11.05	8.2	14.2	18.7
Flacq - - -	17.08	19.1	13.7	21.3	...
Grand Port - - -	10.8	16.4	...	...	19.5
Savanne - - -	10.07	17.4	...	...	13.6
Black River - - -	35.6	39.4	40.1	...	54.9
Plaines Wilhems - - -	2.3	2.8	...	...	...
Moka - - -	40.4	4.2	2.2	4.6	5.8
Whole Colony :—	10.9	13.4	10.0	15.8	15.6

These figures can only be regarded as approximate. The total number of children examined is 12,925. Plaines Wilhems and Flacq schools could not be examined in 1923 except those in Curepipe and Plaines Wilhems (Extra-Urban), the latter examined during the first half-year only.

The examination of the blood of school children with a view to ascertaining the presence of Malarial parasites has been carried on by a trained Microscopist all the year round.—The findings of the tests are shown in Appendix II.

PNEUMONIA.—In the whole Colony the total number of deaths is 1.083 against 1.318 in 1922 and 1.301 mean for the preceding five years.

The admissions into hospitals were 287 with 103 deaths against 331 with 109 deaths in 1922, the mean figure for the five-year period 1918–1922 being 287.

INFLUENZA.—In the whole Colony the deaths stand at 556 against 631 the year before. The mean for the preceding five years is 2.526. The hospital returns show 1192 admissions with 53 deaths against 1596 with 51 deaths in 1922. The hospital case mortality in 1923 was 4.4% against 3.2% in 1922. The number of admissions was on an average 2.626 during the five years 1918–1922.

BRONCHITIS.—The total deaths registered in the Colony numbered 521 against 551 in 1922 and 704 average for the preceding five years.

In this case the hospital admissions reached 925 (with 23 deaths) against 1.052 in 1922, the hospital death-rate being 2.5% against 3.5% the year before.

DYSENTERY.—Dysentery is not a notifiable disease in Mauritius. The mortality due to that disease in 1923 was 318 against 496 in 1922 and 686 the average for the preceding quinquennial period. The hospital admissions show 379 (with 24 deaths) against 452 in 1922 and 630 average for the five year period 1918–1922. The hospital case mortality was 6.3%.

In the dispensaries 1573 cases were treated against 1.934 the previous year and 1.392 the mean for the preceding quinquennial period.

ENTERIC FEVER.—In the whole island 150 cases were registered against 224 in 1922 and 288 in 1921. The highest figures are furnished by Port Louis (40), Savanne (28), Curepipe (18), Beau Bassin—Rose Hill (16) and Moka (14).

The months of particular prevalence were April and August. Appendices III & IV show the prevalence of the various notifiable infectious diseases in 1923 according to districts or sanitary sections and monthly.

77 cases were treated in hospital against 74 in 1922.

The deaths (13) give a case mortality of 17% against 27% (20 deaths) the previous year.

The figures for the past ten years are as under:—

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
234	188	227	244	169	190	168	288	224	150

LEPROSY.—The number of inmates at St. Lazare Leper Asylum on 1st January 1923 was 37 (males 25, females 12).

There were 16 admissions during the year (8 males, 8 females), 2 deaths and 14 discharges. There remained 37 lepers at the end of the year. (21 men and 16 women).

Of the 16 admissions, 12 were first admissions; seven were in the following stages of the disease: Tubercular 4, Anaesthetic 3; one was a lunatic released on probation.

Among the new admissions 1 came from Port Louis, 1 from Roche Bois, 1 from Rose Belle, 1 from Pamplemousses, 2 from Mahebourg, 2 from Grand Gaube and 1 from Phoenix.

The discharges were at the lepers' own request. Three deaths from this disease were registered in the whole Colony.

Leprosy is not a notifiable disease in Mauritius. It is probably common enough in the Colony. Every day cases are met with in the streets of Port Louis and elsewhere. No restriction is made except as regards mendicant and criminal lepers.

No law exists for the compulsory segregation of lepers. They wander about at liberty living with their families and transmitting the disease. There is no power to prohibit marriages between or with lepers, hence the hereditary taint continues to be spread.

The construction of the new (Powder Mills) Leper Asylum has been completed and the opening of the institution effected on the 1st February 1924 by the transfer of the lepers.

In the draft Public Health Ordinance leprosy is made notifiable and the segregation of pauper, convict and vagrant lepers is rendered compulsory. It is hoped that this ordinance will soon be passed and put into force.

Treatment is given in the form of injections of Moogrol. "Oscol" Stibium has also been received in connection with Leprosy treatment and with the opening of a new Leper Asylum under the management of another Medical Officer, the systematic treatments with Moogrol and "Oscol" Stibium will be started in the near future.

PLAGUE.—That plague is a disease endemic in Mauritius is easily shown by going over the available statistics since 1899, year of the introduction of the disease in the Colony.

The following statement shows the number of cases, deaths and death-rates since the outbreak of plague in the Colony :

Years	Cases	Deaths	Death-rate	Years	Cases	Deaths	Death-rate
—	—	—	—	—	—	—	—
1899	- 1,416	- 1,117	- 78.9	1912	- 656	- 541	- 82.5
1900	- 796	- 593	- 74.5	1913	- 313	- 261	- 83.4
1901	- 1,093	- 805	- 73.7	1914	- 125	- 111	- 88.8
1902	- 506	- 384	- 76.3	1915	- 33	- 25	- 75.8
1903	- 1,395	- 1,035	- 74.2	1916	- 22	- 15	- 68.2
1904	- 568	- 449	- 79.0	1917	- 8	- 7	- 87.5
1905	- 308	- 251	- 81.5	1918	} No case notified or detected.		
1906	- 434	- 344	- 79.3	1919			
1907	- 224	- 178	- 79.5	1920			
1908	- 167	- 137	- 82.0	1921	- 375	- 297	- 79.2
1909	- 457	- 333	- 72.9	1922	- 98	- 75	- 76.5
1910	- 731	- 553	- 75.6	1923	- 139	- 118	- 84.8
1911	- 173	- 131	- 75.7				

Appendices V to IX show the number of plague cases and deaths registered in the Colony during the year, monthly for each district, the classification of the cases according to Place of Treatment, Race Incidence, Sex Incidence, Age Incidence.

Appendix X shows the number of preventive inoculations made and number of vessels fumigated and disinfected; Appendices XI & XII give the number of rodents caught, number examined, number of cats found dead and examined.

The number of rodents caught in Port Louis was	-	-	-	55,273
" " " Plaines Wilhems was	-	-	-	19,669
" " " the other districts	-	-	-	8,419

Total - - 83,361

The cost of the Rat Campaign works out for 1923 at 51 cents per rat caught.

In 1923, human plague prevailed practically all the year round in Port Louis. In October, the disease broke out in Plaines Wilhems at Beau Bassin, Rose Hill and Beau Séjour and on Ebène, Highlands and Minissy Estates. There was also an isolated case at New Grove (Grand Port) at the close of the year.

Paragraphs of the report of the Medical Officer of Health for Port Louis, relative to Plague, Plague prophylaxis and anti-Rat campaign give full information on the steps taken in Port Louis to combat the spread of the disease.

Rat catching was persevered with throughout the year, and every rat caught, killed or found dead was examined bacteriologically.

During the year all grain stores were regularly and often fumigated by means of the Clayton apparatus.

Failure to eradicate plague and incomplete success of the anti-rat campaign are attributable to :—

- (i) Old dilapidated buildings, out of repair, mostly old wooden buildings with double walls and connected with cellars and old drains.
- (ii) Overcrowding and insanitary mode of living of general mass of population.
- (iii) Lack of provision amongst the poor for keeping food out from access by rats.
- (iv) Grain Stores, none of which is rat proof. Every Chinaman's house is a grain store. Rice, grain and gunny bags are stored all over the town.
- (v) Ignorance of the population and reluctance to report cases of plague, specially in country districts, where straw huts are burnt when infected, although compensation is paid in each case.

The remedies suggested are :—

- (i) Educational propaganda.

Cinema films have been ordered in November 1923 thro' the Director of Department of Ankylostomiasis and delivery may be expected at any time. A complete portable projection (electric power) apparatus with accessories complete has also been ordered at the same time. The films expected are : "Mosquitoes and Malaria," "Swat that fly," "The Rat Menace."

These films will be shown free of charge in schools and free open air exhibitions will also be given. Much good is expected from this source.

- (ii) *Better housing and housing conditions.*—(More houses, better houses, domestic hygiene).—During years it has been constantly necessary to call attention to the unsatisfactory conditions arising from *scarcity of houses, dilapidated houses, dark and ill-ventilated houses, back to back houses, absence of domestic hygiene*. Numerous houses have been recently erected which do not satisfy the minimum requirements and which should not have been passed as fit for human habitation.

Overcrowding exists in Port Louis, the townships of Plaines Wilhems and many villages and hamlets.

The shortage of houses prevents in many cases the execution of repairs and improvements necessary as temporary evacuation is indispensable and other houses cannot at the same time be obtained. All over the island, buildings which are on the border line of unfitness for human occupation can be seen inhabited.

Our future policy must aim at prevention in its fullest and most liberal sense. The hospitals have been improved in equipment and staff. Better provisions for medical attendance on the poor have been made and new Dispensaries have been opened during the year. The Tuberculosis Ward and Tuberculosis Bureau are working and the New Leper Asylum has been opened on the 1st February 1924. It is however essential that the efforts of the public health campaign should be concentrated upon methods and means that will reduce the demands on these institutions.

The social conditions and housing of the poorer classes in Port Louis have been admirably described by Dr. Balfour in his reports. Housing in Port Louis and its suburbs, in populous towns, villages and hamlets is absolutely wretched.

Such breeding places of disease should be removed and much saving effected on the expenditure upon hospitals and dispensaries.

A healthy house is essential. It is impossible to demolish or close houses on wholesale scale until better and more attractive accommodation may be offered to the dispossessed.

The air space around a house is of more importance than the size of the house itself.

Government housing scheme.—The scheme devised by His Excellency Sir Hesketh Bell, K.C.M.G. Governor of Mauritius, is an example of what can be done in Mauritius towards solving the problem of housing of the working classes.

The Model Village at Cassis has been energetically extended throughout the year under review. The result has been that a pleasant and attractive suburb has grown up in this area.

The construction of this village has provided a mine of information regarding the best type of materials to be employed in such work, which information will be of great value to the Colony in the future.

The locality is healthy and the village experiences almost constantly the beneficent effects of a fresh breeze.

During 1923, the following buildings were completed :—

At Cassis—Model Village—

- 22 two-roomed cottages ;
- 8 single room lodges of six rooms each ;
- 3 eight-roomed cottages ; and
- 3 concrete cottages built by a Contractor.

At foot of Signal Mountain (New Cut Street): Blocks A and B of 12 double rooms each.

At Cassis, other cottages had been begun but not completed, and at New Cut Street Block C of 12 double rooms was nearing completion.

The population of these “villages” stood as under in May 1924 :—

	Adults	Children
Cassis Model Village - - - - -	323	137
New Cut Street - - - - -	52	26
	<hr/> 375	<hr/> 163

The buildings in occupation at Model Village, Cassis, were as under, when submitting this report :—

- 83 two-roomed cottages.
- 22 three do.
- 11 lodges of 6 rooms.
- 1 lodge of 9 rooms.
- 1 lodge of 4 rooms.
- 3 lodges of 4 double rooms.

(a fourth lodge of 4 double rooms has been reserved as an Institute).

(iii) *Rat proof granaries and rat proof stores.*—No progress has been made during the year towards providing wholesale rat proof granaries.

The rat proofing of the floor of premises used as shops and stores has been insisted upon all over the island and the cementing of underground cellars has also received the attention of the Health Authorities.

METHOD OF TREATING CONTACTS :

- (a) Disinfection—all premises, both of patients and of contacts were claytonised.
- (b) Burning of rags.
- (c) Isolation of patients as well as contacts *in situ* or in lazaret.
- (d) Bathing of contacts.
- (e) Inoculation by prophylactic vaccine.

DIPHTHERIA.—In the whole Colony 47 cases were notified and 5 deaths registered. The disease prevailed mostly in Plaines Wilhems (40) and Moka (4).—Please see Appendices III and IV. Five cases were treated in hospital with one death.

MEASLES.—This disease was made a quarantinable disease by Regulations published under G.N. No. 301 of 1923.

9 cases were notified in December 1923, all in the town of Quatre Bornes. No hospital admission.

SCARLET FEVER.—Nil.

CANCER OR MALIGNANT DISEASE.—87 cases admitted into hospital with 9 deaths.

The following statement shows the deaths registered at the Civil Status Offices during 1923 :—

Cancer of the buccal cavity	-	-	-	-	-	2
do. stomach, liver, &c.	-	-	-	-	-	15
do. peritoneum, intestines and rectum	-	-	-	-	-	5
do. of the female genital organs	-	-	-	-	-	7
do. of the breast	-	-	-	-	-	2
do. of other unspecified organs	-	-	-	-	-	23

DIARRHŒA AND ENTERITIS.—In the whole Colony 625 deaths occurred, representing a death-rate of 1.6‰ of the population and a percentage of 5.8 of total deaths. In the hospitals 506 cases were admitted resulting in 45 deaths, giving a case mortality of 8.9%.

ORGANIC DISEASES OF THE HEART.—Deaths from organic diseases of the heart numbered 151 in 1923, giving a percentage of 1.4 of total deaths. The number of cases admitted to hospital was 117 with 22 deaths.

VENEREAL DISEASES.—22 deaths were registered under Syphilis in 1923. In hospitals 254 cases were treated, 43 of which were of primary infection; 5 deaths resulted from these, 3 being of Tertiary infection, 1 of Primary and 1 inherited.

It is proposed to open the Venereal Clinic in the near future. As already stated, venereal disease is probably of more frequent occurrence than the above figures would otherwise denote. Most cases are concealed, a few treated by private medical practitioners and only cases which incapacitate work seek admission into hospitals.

NOTIFIABLE CONTAGIOUS AND INFECTIOUS DISEASES.—Ordinance No. 47 of 1898 provides for the compulsory Notification of Plague, Cholera, Choleraic Diarrhœa, Small-pox, Yellow fever, Diphtheria and Membranous Croup, Measles, Scarlatina or Scarlet fever, and the fevers known by any of the following names: Typhoid or Enteric, Typhus, Relapsing or Continued and Puerperal; and traumatic Erysipelas and of any other disease that may be added thereto by regulations. By Regulations published under G.N. No. 65 of 15.4.08, cerebro-spinal meningitis has been made notifiable; so also the disease known as Spanish Influenza, by regulations published under G.N. No. 153 of 11.6.20.

Appendices III & IV give particulars regarding notifiable diseases which have been met with and declared during 1923.

Enteric fever, plague, diphtheria, measles and scarlet fever have been reported upon above.

CEREBRO-SPINAL MENINGITIS.—One case was notified from Victoria Hospital. It ended fatally. Two other patients of Victoria Hospital were treated for the same disease during the year under review.

ERYSIPELAS.—16 cases were notified and 9 deaths registered.

Hospital admissions numbered 24 resulting in 4 deaths.

SMALL POX AND VACCINATION.—There has been no small pox in the island since 1913. A total of 9,179 children were vaccinated during the year and 9,093 were successful vaccinations. In 11 cases the results could not be ascertained. The proportion of vaccinated children to total births is 66.1%. In some cases vaccinations are privately performed, these are not included in the above figures.

The low proportion of vaccinated children to total births reveals the great danger Mauritius may run if an epidemic of small pox happened to break out.

The wide margin between vaccinated and unvaccinated children is to be attributed to the fact that in certain sections of the community, children are not, as a rule, submitted to vaccination.

PUERPERAL SEPTICÆMIA.—In the whole Colony 228 women died in consequence of the puerperal state. 24 cases of Puerperal septicæmia were treated in hospitals resulting in 9 deaths (case mortality 37.5%).—18 notifications were received during the year.

13,879 births having been registered during the year, the mortality among women in child-birth is 16.4 per thousand of live births, a very high figure. Unqualified and unfit midwives are undoubtedly responsible for a good proportion of these deaths. With the development of the policy of Government respecting free provision of qualified midwives for the poor in populous centres and the influence and success it is hoped that the Midwifery and Child Welfare Society will have on the community, the future may be expected to be less sad for women in childbirth in the poorer classes.

ITCH (SCABIES).—154 cases were treated in the hospitals.

ANKYLOSTOMIASIS.—51 deaths were registered during the year against 56 in 1922. 500 cases were treated in the hospitals, with 13 deaths.

An abridged report on the work carried out by the Department of Ankylostomiasis is given in Appendix XIII.

BERI-BERI.—(Not notifiable). 5 deaths were registered in the whole Colony against 17 in 1922, 71 in 1921 and 29 in 1920.

31 cases were treated in the hospitals resulting in 2 deaths.

PULMONARY TUBERCULOSIS.—Notification of Pulmonary Tuberculosis is not compulsory in Mauritius, although this is the case in other countries. In the New Health Ordinance the disease is made notifiable.

Hospital admissions indicate a further decrease in the prevalence of the disease, 368 against 444 in 1922 and 577 in 1921. The case mortality (104 deaths) was 28.2% against 24.3% the previous year.

The mortality from pulmonary tuberculosis in the whole Colony was 828 against 958 in 1922 and 973 for the five-year period 1918–1922. The following statement shows the classification of deaths from tuberculous diseases for the last five years:—

	1918	1919	1920	1921	1922	Average
Pulmonary Tuberculosis and Phthisis	980	1,065	1,005	1,010	1,076	1,027
All forms of Tuberculosis ...	1,107	1,104	1,030	1,035	1,083	1,072

The corresponding figures for 1923 are : 959 and 979.

The Tuberculosis Ward at the Civil Hospital has continued to receive cases of tuberculosis from Port Louis and other places. A trained microscopist has been attached to the Ward during the year.

As soon as the notification of Pulmonary Tuberculosis shall be compulsory, the Health Officers will investigate the incidence of the disease in their districts on well defined lines ; the domestic life and housing conditions of each case will be carefully studied and necessary steps taken to prevent the spread of infection.

CHICKEN-POX.—5 cases were treated in Beau Bassin Prison hospital.

MENTAL DISEASES.—The total number of persons certified insane on 31st December, 1923 was 708 or 34 less than the year before. This represents a ratio of insane to total population of 1 in 539 or 18.5 per 10,000.

The admissions into the Lunatic Asylum numbered 194. They are classified into : first admissions 88, second admissions 6, readmission from probation 38, readmission from Barkly Asylum Lunatic Branch Wards 31 and from Victoria Hospital 5 including 2 from Lying-in-Ward ; 26 admitted on interim order but found not insane after examination by Commissioners in Lunacy.

The causes of insanity are reported to be mental worry, grief, hysteria, fever, influenza, heredity, alcoholism, epilepsy, syphilis and gandia smoking.

The largest number of admissions came from the districts of Plaines Wilhems, Port Louis and Grand Port.

The number of inmates left on 31st December 1922 and 1923 is shown hereunder:—

LUNATIC ASYLUM					LUNATIC BRANCH WARDS			GRAND TOTAL
	M.	F.	Total		M.	F.	Total	Grand Total
31.12.1922 - -	250	236	486		47	27	74	560
31.12.1923 - -	253	204	457		47	42	89	546

The number of discharges during the year is as under:—

	M.	F.	Total
Found not insane - - - - -	23	3	26
Found cured and finally discharged - - -	3	...	3
Found relieved and released on probation -	68	45	113
Transferred to Victoria Hospital Lying in Ward -	...	2	2
„ „ Barkly Asylum Lunatic Branch Wards - - - - -	16	39	55
Total - - - - -	110	89	199

2 harmless imbeciles were allowed to leave the Lunatic Asylum Branch Wards on probation under the care of relatives or friends.

77 (53 males and 24 females) patients on probation outside the Asylum were found cured and discharged finally.

There were 24 (9 males, 15 females) deaths in the Asylum during 1923, against 29 in 1922. The death-rate (on total number of inmates in Lunatic Asylum and Lunatic Asylum Branch Wards on 1st January 1922) was 4.28%. The death-rate was 5.84% in 1922, 4.68% in 1921, 6.29% in 1920, 11.9% in 1919 and 8.71% in 1918.

Summarising the experience of 1923, insanity caused by Alcoholism, Toxic Mania, Opium and Gandia smoking appears to decrease whereas Puerperality and Hysteria have been factors bringing in the Asylum more patients than usual.

Treatment with Arseno Benzol, Bismuth, Enesol has proved beneficial, so also has been the introduction of Scopolamin and Morphine in the treatment of excitement.

Lack of accommodation is one of the drawbacks the institution is still suffering from. It is hoped to remedy matters in the near future.

A Roman Catholic chapel has been constructed and, although exiguous, has afforded distractions to the patients.

The public, on a generous move by His Excellency the Governor, has taken interest in the institution in providing gramophone records, magazines, cakes, tobacco.

The Police Band played on the Airing ground on several occasions.

The articles manufactured by the inmates and the garden produce for 1923 are estimated at Rs. 13,076.

V.—PORT AND QUARANTINE.

233 vessels called at the Port of Port Louis in 1923. The distribution is as under :—

	Sailing Crafts				Steamers			
British vessels -	-	-	-	144	-	-	-	27
Foreign „ -	-	-	-	59	-	-	-	3
				203				30 = 233

The crew in Steamers (British and Foreign) numbered 15,359 and that in sailing crafts 458. The number of passengers examined in steamers was 4,458 and that in sailing crafts 310.

Pratique was given to 201 vessels immediately on arrival, while 4 vessels coming from infected ports were only admitted to pratique after disinfection of linen and effects of passengers and crew and fumigation of the fore-castle and 26 others were admitted to pratique after disinfection of linen and effects of passengers and crew and claytonisation of the cargo. The number of vessels refusing pratique and taking coal &c. in strict quarantine was 2.

22 outgoing vessels were claytonised on request of the owners or agents on account of the prevalence of plague in the Colony.

The revenue accruing to the Department in connection with claytonisation of vessels and operations at the Harbour Disinfecting Station amounted to Rs. 5,838.40.

No re-vaccination on account of small-pox was carried out and no contagious or infectious disease was detected on board any vessel during the year.

The Master of S.S. *Karin* was prosecuted and fined Rs. 100 and costs for entering the harbour before admission to pratique.

It was not necessary to use Flat Island and Cannoniers' Point Quarantine Stations for quarantine purposes except the latter in December, in connection with 559 Indian immigrants landed ex S. S. "Surada."

VI.—HOSPITALS AND ASYLUMS

Appendix XIV summarises the work done in the hospitals and Asylum of the Colony during the year.

The Civil Hospital X-Ray apparatus will have been placed on a modern footing after the erection of the plant purchased from Dr. Curé.

With the old plant, 479 radium applications, 103 radiographs and 21 radiosopic examinations were made, details are given in Appendices XV and XVI.

The laboratory work performed at the Civil Hospital is given in Appendix XVII.

It is proposed to equip Victoria Hospital also with an up to date powerful installation for every branch of work and research.

Special accommodation for First class patients at Victoria Hospital is to be provided soon. The question of substantially increasing the Nursing staff of the latter hospital was also on the point of being satisfactorily settled at the end of the year.

Mental diseases have been reported upon above.

It has been decided to alter the title of the Lunatic Asylum into Mental Hospital as from next financial year. It is proposed to appoint an Assistant Medical Officer to that institution.

Dr. Dyson, Superintendent of the Asylum assumed duties in March 1924.

VII.—SANITARY CONDITION OF THE ISLAND.

Contraventions, &c.—In the several sanitary sections of the rural districts, Plaines Wilhems included, (for Port Louis, see Appendix XVIII, report by the Medical Officer of Health for the district), the number of contraventions detected by the Sanitary Officers amounted to 3,134—giving rise to 1,204 prosecutions with a total of Rs 7,301.50 fines.

21,521 notices, orders and requests were served under the several Sanitary Ordinances and Regulations. Of these 3,330 were not complied with and led to 2,018 prosecutions resulting in aggregate fines of Rs. 7,494.50.

Revenue.—The revenue derived from fees collected in Government Cemeteries, Markets and Abattoirs was Rs. 17,112.50, Rs. 2,237.45 and Rs. 3,759 respectively and Appendix XIX shows the total number of cattle slaughtered in all the Abattoirs of the Colony.

Schools.—The Government and State Aided Primary Schools were each visited at least twice during the year by the Health Officers. (In Port Louis, the inspection of schools is made on methods devised by Dr. A. Balfour and the present Director). The report of the Medical Inspector is given in Appendix XX. The same methods are being gradually extended to the other districts. A report on the start made in Plaines Wilhems is given in Annexure to Appendix XXI, the report by the Medical Officer of Health for Plaines Wilhems.

In Flacq District also a start has already been made.

As a general rule, the school buildings are buildings which were not constructed for the purpose they are now used for. The school latrines, as a result of the Sanitation Campaign, are in several districts good and generally well upkept, but there still remain numerous cases where improvements are urgently needed.

Water-Supply.—As regards the domestic water-supply, the districts of Plaines Wilhems and Moka, using mostly the Mare-aux-Vacoas water, have the best supply possible.

In the extra urban area of Plaines Wilhems and in the upper parts of Moka district, the supply is derived from wells and rivers and is not good in most cases.

In Pamplémousses, the supply from canals and rivers is of suspicious quality but that from Le Plessis and Bassin Loulou springs is good and the water drawn from wells is of fair quality. The hamlet of Triolet was towards the end of the year, provided with a piped supply derived from a pumping station at St. André well. Rivière du Rempart has good supplies from caves and wells except those derived from canals and rivers which are bad.

In populous hamlets in Flacq district, the supply is good, derived from River Dubois and Rivulets Jamblon and Monneron. In out of the way localities, the water is drawn from wells, springs and rivers and is generally not good.

In Grand Port, the supply from Bé-Manique River is good but has proved inadequate and on several occasions has flowed intermittently. Water derived from wells, springs, Rivulet Délices and River des Créoles is of fair quality, but in other cases it is very bad e.g. the supply of Old Grand Port, Grand Sable and Petit Sable.

During November and December, the inhabitants along the coast line between Old Grand Port and Grand Sable have been practically short of all water. They had to get their supply from Mahebourg by boat. This is a rather a recurrent matter, the feeders of the locality being usually dry in the hot season.

In Savanne, Rivers des Anguilles and Patate and other rivers, with wells and canals, constitute the principal sources of water supply. The pipe supplies of Chemin Grenier and Souillac have proved inadequate during the dry season. Most of the wells and springs supplying water are liable to pollution and the water is bad.

In Black River, the public fountains supply fairly good water but the water from rivers, wells and canals are liable to pollution during heavy rain. At Bambous and Clarens, the supply has been improved by the provision of additional public fountains. At Chamarel, springs and rivers afford a good supply and indigenous water-borne diseases have been unknown for years in the locality.

The water supply of Port Louis is derived from Grand River North West and Bathurst Canal. Government Establishments and some private firms and buildings are provided with Mare-aux-Vacoas water. The first two supplies of water are unfit and unsafe. It is hoped that the Chlorination Plant under erection at Pailles, in the bed of Grand River N. W. will soon start working and that filtered chlorinated water will be substituted to the crude, impure water that 95% of the inhabitants of Port Louis are obliged to consume.

Water supply is a most important factor towards the health of a community and the District Boards have taken the question in hand and the water supplies of country districts are being largely improved mostly by piped supplies from pure sources or unpolluted springs and rivers.

Sanitary Engineer's work.—Appendix XXII summarises the work carried out by the Sanitary Engineer.

Soil Sanitation.—The Soil Sanitation Campaign has been pushed on very energetically during 1923. Appendix XXIII is a recapitulation of the ordinances, regulations &c. affecting the Medical and Health Department, passed during the year. It will be noticed that New regulations have been put into force regarding Septic Tanks, Disposal of Human Excreta and

Trenching and Manure Factories, regarding the removal of house refuse etc. in the towns of Beau Bassin—Rose Hill, Quatre Bornes and Curepipe. New Regulations have also been put into force relative to the provision of Pail and Pit latrines of approved type.

At the close of 1923, these regulations (G. N. No. 170 of 1923) had been made applicable to the districts of Moka, Grand Port and ~~and~~ Pamplemousses and to the towns of Port Louis, Beau Bassin—Rose Hill.

They were also being applied to the Extra-Urban Area of Port Louis, to the town of Quatre Bornes and to certain parts of Black River and Plaines Wilhems districts, and the formal application of the Regulations to these localities has been made by means of Regulations published in 1924.

An abridged report on the work carried out by the Department of Ankylostomiasis in 1923 is given in Appendix XIII. Para. 7 of that report is a brief summary of the whole Sanitation Campaign. As soon as the work is well advanced in one district, another district is selected, the regulations made to apply to it and the campaign pushed on vigorously. It is thus expected that soon every district will have been sanitated i.e. every premises provided with an approved type of disposal of dejecta viz: septic tank, pail latrine or pit latrine.

Anti-Malarial Works.—Regarding anti-malarial works in the districts of Port Louis and Plaines Wilhems, the reports of the respective Medical Officers of Health, Appendices XVIII and XXI give ample details.

The work in the other districts has consisted mainly in the maintenance of existing works, repairing of damage done by animals and floods, clearing of marshy lands, filling up of quarry pits and weedy pools and ponds, planting of grass in former river or stream beds and petrolisation of large marshes.

The staff of trained moustiquiers did good work in the search of mosquito-breeding places all over the island.

Dr. Mac Gregor's Report and River Reserves Question.—The final report of Dr. Mac Gregor is being awaited upon regarding the policy to be adopted in connection with River Reserves.

VIII—MILK IN MAURITIUS

Considerable thought has been given to this question. It must be admitted that the milk supplied to the population is unsatisfactory. The methods of production, handling and distribution of one of the most important food products require organization.

Absolute purity in milk is like absolute perfection in anything else—unobtainable in this world.

Only a certain measure of comparative safety is attainable at such cost as will not put an end to its consumption.

For the health of the community as a whole, milk of the maximum practicable degree of purity is important but reasonable cheap milk is also important.

During the year many visits were paid by the Director to the stables and discussions were held with the milk sellers explaining the advantages to themselves and the public by having cleanly milking and clean cans. Specimens of milk from Natal treated by Nielsen's process, and Australia were submitted and supplied to Civil Hospital. Favourable reports have been received thereon.

The Government of Mauritius has shown a good example by importing milch cows (Holstein) and building up to date stables at Curepipe and carrying out the work in a satisfactory and clean method. This supply which is sent to the Victoria and Civil Hospitals has been very satisfactory.

It is to be hoped that this branch will be extended and that the public will be able to obtain a supply, when it will be realized what good clean milk means.

The whole question is being studied with the idea of improving the milk supply. There is no reason why milk should not be supplied clean and sweet in Mauritius. The questions of (i) a Central Distribution Centre, (ii) the difference between milk delivered to the consumer in the raw state and milk treated with heat for the destruction of bacteria before delivery are receiving attention.

Much prejudice exists at present as to whether Pasteurisation and similar treatment of milk do not destroy the value of milk as a food, but it can be admitted that heat treatment of milk if properly carried out does not alter to any appreciable extent the food value of milk and it certainly destroys disease producing organisms and thus renders a potentially dangerous milk safe and further also conditions it for travelling without deterioration and consequently enlarges enormously the supply.

It is hoped during 1924 to submit a scheme which will improve the milk supply at its source and distribution, but it is imperative in the interests of public health that delivery in sealed bottles must prevail.

IX.—THE CIVIL MEDICAL STORES.

The following tabular statement summarises the transactions of the Medical Stores during the year 1923.

1—Cost of drugs, chemical, instruments and repairs to instruments and appliances &c.	Rs. 103,601.89
2—Value of drugs, chemicals, instruments &c, issued to Government Institutions ...	Rs. 75,701.33
3—Value of disinfectants, sera, vaccine &c. issued in connection with Plague and other contagious diseases.	Rs. 41,536.89
4—Amount realized by sale of medicines, vaccine and sera to private Medical Practitioners and value recovered for loss and damage to instruments issued to Institutions.	Rs. 1,755.70
5—Quantity of Quinine issued.	12,087 oz 272 grs.
6—Cost of Quinine issued	Rs. 22,735.14
7—Institutions to which drugs in general are issued:	
Hospitals ... 12	Schools ... 150
Dispensaries ... 31	Police Stations ... 54
Charitable Institutions ... 10	Govt: Institutions ... 15

X.—MISCELLANEOUS.

Appendix XXIV is a recapitulation of the work performed by the Department in 1923.

Appendix XXV deals with legal powers wanted in the Colony.

Appendix XXVI is a list of the Senior Staff of the Department.

Appendix XXVII is a list of the changes in the staff during the year

Appendix XXVIII is the report on the Bacteriological Laboratory.

Appendix XXIX is a list of Medical Practitioners, dentists, pharmacists and assistant pharmacists registered during the year.

T. B. GILCHRIST,
Director, Medical & Health Department.

APPENDIX I.

ESTIMATED POPULATION OF MAURITIUS ON 31ST DECEMBER, 1923.

Districts	Area in square miles	General Population			Indian Population			Total Population			Density per square mile
		Males	Females	Total	Males	Females	Total	Males	Females	Total	
Port Louis ...	16½	15,144	13,945	29,089	11,963	10,717	22,680	27,107	24,662	51,769	3,137
Pamplemousses...	69	3,371	3,161	6,532	15,975	14,531	30,506	19,346	17,692	37,038	536.7
Rivière du Rempart ...	57	2,984	2,645	5,629	13,659	12,784	26,443	16,643	15,429	32,072	562.6
Flacq ...	115	5,386	4,960	10,346	22,474	20,569	43,043	27,860	25,529	53,389	464
Grand Port ...	100½	6,476	6,178	12,654	19,772	17,598	37,370	26,248	23,776	50,024	497.7
Savanne ...	94½	3,742	3,539	7,281	13,950	12,319	26,269	17,692	15,858	33,550	355
Plaines Wilhems ...	78½	14,768	17,633	32,401	23,717	22,549	46,266	38,485	40,182	78,667	1,002
Moka ...	89	2,604	2,675	5,279	13,364	12,135	25,499	15,968	14,810	30,778	345.8
Black River ...	100	2,643	2,464	5,107	4,938	4,346	9,284	7,581	6,810	14,391	143.9
Total ...	720	57,118	57,200†	114,318*	139,812‡	127,548	267,360	196,930	184,748	381,678	530

* General population excluding Chinese : 106,763

Chinese " 7,555

† Excess of females over Males in General Population : 82.

‡ Excess of Males over Females in Indian Population : 12,264.

APPENDIX II.

BLOOD TESTS OF SCHOOL CHILDREN FOR MALARIAL PARASITES

PORT LOUIS DISTRICT

Name of Schools	No of pupils examined	No. of pupils infected	No. of pupils hav- ing taken quinine	Percentage of pupils infected
St. Joseph Aided (Magon Street) ...	253	32	0	13.4
De la Salle Aided ...	179	17	3	9.4
Loreto Convent, Corderie Street...	151	10	0	6.6
Ste Croix Aided ...	51	11	0	22
Vallée des Prêtres Government ...	98	17	0	18.3
Eastern Suburb (Centre Street) ...	95	15	0	15.7
Nicolay Road Aided ...	131	21	0	16
Père Laval Aided ...	94	15	0	15.9
Central Boys Government ...	329	39	0	11.8
La Paix Street Aided ...	188	20	0	10.6
Pamplemousses Road Government ...	110	12	13	10.9
Roche Bois Government ...	35	5	0	4.2

PAMPLEMOUSSES DISTRICT

Pamplemousses Government ...	107	22	0	20.5
Plaine des Papayes Government, (Mapou) ...	101	26	0	26
Triolet Maharwarnuth Aided ...	117	20	0	17
Ruisseau Rose Govt., (Long Mountain) ...	167	21	0	12.5
Arsenal Road Government, (Terre Rouge)...	47	5	0	10.6
Terre Rouge Government ...	96	12	0	12.5
Long Mountain Aided, (Notre Dame) ...	90	5	0	5.5
Pamplemousses Village Aided, (Boys) ...	120	6	0	5
St. Cœur de Marie Aided, (Trou anx Biches) ...	34	3	0	8.8
Crève Cœur Govt., (Long Mountain) ...	86	4	0	4.6
Congomah Govt., (Long Mountain) ...	113	6	0	5.3

GRAND PORT DISTRICT

Mahébourg Boys Government ...	224	31	0	13.8
Mahébourg Boys Aided R. C. ...	78	8	0	10.2
Mahébourg Girls Government ...	131	11	0	8.3
Mahébourg Girls Aided R. C. ...	158	25	102	15.7
Mare d'Albert Government ...	137	2	137	1.4
New Grove Aided R. C. ...	145	2	47	1.3
Rose Belle Girls Government ..	159	3	0	1.9
Rose Belle Boys Government ...	256	4	16	1.5
Rivière des Créoles Government...	109	2	109	1.8
Anse Jonchée Aided ...	46	8	0	17.3
Old Grand Port Aided ...	51	3	0	5.8
Plaine Magnien Aided...	43	1	43	2.3
Plaine Magnien Government ...	134	13	134	9.7
L'Escalier Government ...	140	8	0	5.7
Bouchon Aided (Union Vale) ...	22	1	22	4.5
Cent Gaulettes Aided (St. Hubert Village) ...	78	6	0	7.6
Riche en Eau Government (New Grove) ...	86	5	0	5.8
Nouvelle France Aided ...	55	0	1	0
Mare Tabac Aided (New Grove)...	65	2	0	3
Grand Sable Aided ...	23	1	23	4.3

REMARKS :—*Mahébourg Bel Air Aided*—Of the 36 pupils present, only one gave sample of his blood to be examined, the others refusing, agreeably to the will of their parents.

FLACQ DISTRICT									
Name of Schools		No. of pupils examined		No. of pupils infected		No. of pupils having taken quinine		Percentage of pupils infected	
Reetoo Aided	184	...	5	...	6	...	3.7
Grand River S.E. Govt.	54	...	3	...	0	...	5.5

Out of 171 pupils present, only 54 samples of blood were taken, the parents of the other pupils having raised objections.

Rivière Sèche Govt. — Unable to take a single sample of blood out of 100 pupils present, the pupils refusing, agreeably to the will of their parents.

RIVIÈRE DU REMPART DISTRICT									
Poudre d'Or Government	...	...	84	...	5	...	0	...	5.9

MOKA DISTRICT									
Pailles Aided	...	...	64	...	9	...	64	...	14

SAVANNE DISTRICT									
Souillac Government	...	...	100	...	5	...	100	...	5

RECAPITULATION									
Port Louis	...	...	1,679	...	209	...	16	...	12.4
Pamplemousses	...	...	1,113	...	135	...	0	...	12.1
Grand Port	...	...	2,140	...	136	...	634	...	6.3
Flacq	...	...	188	...	8	...	6	...	4.2
Rivière du Rempart	...	...	84	...	5	...	0	...	5.9
Moka	...	...	64	...	9	...	64	...	14
Savanne	...	...	100	...	5	...	100	...	5
Total			5,368	507		820		9.4	

N.B.—The information relative to pupils having taken quinine cannot be taken as absolutely accurate.

APPENDIX III.

NOTIFIABLE INFECTIOUS DISEASES (EXCLUSIVE OF PLAGUE)—1923

Diseases	Port Louis	Pamplemousses	Rivière du Rempart	Flacq	Grand Port	Savanne	Moka	Black River	Beau Bassin Rose Hill	4 Bornes	Phoenix Vacoas	Curepipe	Total.
Typhoid fever	40	3	2	6	11	28	14	2	16	8	2	18	150
Continued fever	11	...	...	...	1	3	...	...	...	...	...	1	16
Puerperal fever and puerperal septicæmia	8	...	...	3	3	...	...	...	1	...	2	1	18
Erysipelas	1	...	...	8	5	...	...	...	...	1	1	...	16
Diphtheria	...	...	...	1	2	...	4	...	16	16	2	6	47
Cerebrospinal meningitis	...	...	...	...	...	...	...	...	1	...	...	...	1
Measles	...	...	...	...	...	...	...	...	...	9	...	...	9
Chicken Pox	...	...	...	...	...	...	...	...	...	...	...	1	1
Total	60	3	2	18	22	31	18	2	34	34	7	27	*258

* See note to Appendix IV.

APPENDIX IV.

NOTIFIABLE INFECTIOUS DISEASES (EXCLUSIVE OF PLAGUE)—1923

Diseases	January	February	March	April	May	June	July	August	September	October	November	December	Total
Typhoid fever	13	15	14	20	9	17	5	20	13	10	9	5	150
Continued fever	...	...	...	2	4	3	3	2	1	...	1	...	16
Puerperal fever *	3	2	...	...	4	...	1	1	...	2	1	...	14
Erysipelas	3	2	...	1	...	...	3	2	2	3	...	...	16
Diphtheria	6	5	1	8	2	8	2	3	6	4	2	...	47
Cerebrospinal meningitis	...	...	...	...	...	...	...	...	...	...	1	...	1
Measles	...	...	...	...	...	...	...	...	...	...	...	9	9
Cricken Pox	1	...	...	...	...	...	...	...	...	...	...	...	1
Puerperal Septscœmia *	2	...	2	...	...	...	...	...	...	...	...	...	4
TOTAL	28	24	17	31	19	28	14	28	22	19	14	14*	258*

Total number of notifications received by the Department exclusive of Plague during the year was 258 compared with total of 296 in 1922.

* NOTE:—Notification of a few cases notifiable diseases occurred during December has not reached the registration centre, hence the real total is above the one given here.

APPENDIX V.
STATEMENT SHOWING THE NUMBER OF PLAGUE CASES AND DEATHS IN THE COLONY DURING THE YEAR 1923.

Months	Port Louis			Pamplemousses			Riv. du Rempart			Flacq			Grand Port			Savanne			Plaines Wilhems			Black River			Moka			TOTAL		
	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total	Cured	Died	Total			
January	1	17	18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	17	18
February	1	5	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	6	
March	...	8	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
April...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
May ...	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
June ...	1	3	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	4	
July ...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
August	2	6	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
September	1	7	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	7	8	
October	3	16	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	20	25	
November	4	18	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	21	26	
December	1	12	13	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	4	*20	25	
Total	14	103	117	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	6	14	20	...	...	20	118	139
Percentage of deaths	...	88%	...	...	...	...	...	...	...	...	100%	...	...	...	...	...	...	...	...	70%	...	...	...	...	...	...	84.8%

* 1 Patient was still under treatment on 31.12.23.

APPENDIX VI.

CLASSIFICATION OF CASES ACCORDING TO PLACE OF TREATMENT

Denominations				Cured	Died	Total
Seen post mortem	...	...	...	.	66	66
„ in extremis	...	...	...	...	13	13
Treated at home	...	...	...	3	4	7
„ in Estate Hospital	...	...	...	...	...	...
„ at Civil Hospital	...	...	...	...	3	3
„ at Grand River N. W. Lazaret	...	...	...	15	29	44
„ at Chinese Hospital	...	...	...	2	3	5
Total				20	118	138

APPENDIX VII.

RACE INCIDENCE

Denominations				Cured	Died	Total
Mauritian	...	...	...	8	44	52
Indian	...	...	...	9	57	66
Chinese	...	...	...	3	17	20
Total				20	118	138

APPENDIX VIII.

SEX INCIDENCE

Denominations				Cured	Died	Total
Males	...	...	...	16	73	89
Females	...	...	...	4	45	49
Total				20	118	138

APPENDIX IX.

AGE INCIDENCE

Age periods				Cured	Died	Total
Under 1 year	...	...	...	...	1	1
From 1 to 5 years	...	...	...	...	4	4
„ 6 to 10	„	...	...	5	13	18
„ 11 to 20	„	...	...	9	42	51
„ 21 to 30	„	...	...	3	22	25
„ 31 to 40	„	...	...	2	20	22
„ 41 to 50	„	...	...	1	10	11
„ 51 to 60	„	...	...	...	1	1
„ 61 to 70	„	...	...	...	5	5
„ 71 to 80	„	...	...	...	...	...
Above 80	...	...	...	...	...	...
Total				20	118	138

APPENDIX X.

INOCULATION

No. of persons inoculated with Anti-plague vaccine in Port Louis	...	6,029
No. of vessels arriving from infected ports, fumigated and disinfected...	...	30
No. of outgoing vessels fumigated owing to the prevalence of plague in the Island	...	22

APPENDIX XI.

DESTRUCTION OF RODENTS

No. of Rodents caught in Port Louis and Country Districts.								Total
Districts								
Port Louis	...	...	...	...	...	...	...	55,273
Black River	...	...	...	...	...	...	...	3,301
Plaines Wilhems	...	...	...	...	...	...	...	19,669
Grand Port	...	...	...	...	...	...	...	1,408
Savanne	...	...	...	...	...	...	...	1,787
Moka	...	...	...	...	...	...	...	1,701
Flacq	...	...	...	...	...	...	...	222
Total								83,361

APPENDIX XII.

EXAMINATION

RODENTS

Number of rodents microscopically examined and the number found plague infected during the year.

Districts						Examined	Infected
Port Louis	...	...	...	...	...	28,743	536
Plaines Wilhems	...	...	...	...	...	473	32
Savanne	...	...	...	...	...	...	...
Grand Port	...	...	...	...	...	2	...
Total						29,223	568

CATS.

63 cats were found dead or killed in Port Louis—only 38 of them could be examined and 1 only was found plague infected.

APPENDIX XIII.

ABRIDGED REPORT ON THE WORK DONE FOR THE RELIEF AND CONTROL OF HOOKWORM DISEASE BY THE DEPARTMENT OF ANKYLOSTOMIASIS DURING THE YEAR 1923.

1. *Organization.*—During the year a great deal of time has been spent in propaganda.

Dr. Hampton left the island on July 15th, after handing over the direction of the campaign to the present director, Dr. Clark H. Yeager, M.D., who arrived in Mauritius on July 2nd, 1923.

On September 15th, a branch office was opened in Moka, systematic work in the district was started and the year ended with the prospect of Moka being very soon completely sanitized.

The schools were systematically examined and treated, and treatments were given in the branch dispensary, and the inhabitants were assembled at numerous centres for treatment.

2. *Extent of Operations.*—Although Moka is the only district where regular systematic intensive work has been attempted, the influence of the campaign has extended all over the island. Specimens have been received from all parts of the island and there have been many requests for treatment or advice. These applications were from private individuals and also from public and private institutions. The local medical practitioners have very frequently referred their patients to the laboratory, and a large number of treatments have been taken privately for hookworm and other intestinal parasites, which have not been within the scope of the control of the Department and therefore not included in the statistics. A number of estates have also treated their own labour force, and numerous treatments have been given in Government dispensaries and hospitals throughout the island.

3. *Examinations, Treatments, and Cures.*—The following table gives the figures for examinations, treatments, and cures during the year, also the percentage of infection with hookworm and of microscopic cures:

						Number	Percentage
Census	...	...	...	...	...	15,198	...
Examined	...	...	...	...	...	12,540	...
Infected	...	...	...	...	...	7,846	62.5
Treated	...	...	...	...	...	5,506	...
Examined after treatment	...	...	...	...	...	1,211	...
Cured	...	...	...	...	...	1,010	83.4

The rate of infection has been as follows :—

In Moka District

	Examined	Infected	Percentage
Schools	1,499	1,269	84.6
Villages	4,050	3,427	84.6
Estates	1,331	1,115	83.7
Dispensary	93	43	46.2
Total Moka	6,973	5,854	83.9
Outside Moka	5,567	1,992	35.7
Grand Total	12,540	7,846	62.5

Both oil of chenopodium and carbon tetrachloride were used for treatment, the patients being administered either drug or a mixture of both.

4. *Infection with other parasites.*—The following table gives the number of persons incidentally found infected with parasites other than hookworm, and the percentage of infection with ascaris and trichocephalus.

	Number	Percentage
Examined for hookworm disease	12,540	...
Incidentally found positive for :		
Ascaris	6,908	55.0
Trichocephalus	8,294	66.1
Strongyloides	11	...
Oxyuris	22	...

5. *Educational.*—The statement below shows the figures for Educational Campaign and Propaganda.

Lectures delivered.	Number.	Attendance.	Literature distributed.	Number.
Public	33	5,050	Letters... ..	304
School	19	3,500	Pamphlets	10,440
Special	3	290	Notices	6,747
Total	55	8,840	Total	17,491

The cinema film "Unhooking the Hookworm" was ordered and delivery expected during the month of January.

6. *Per capita cost.*—The actual expenditure for the campaign during the year amounted to Rs. 29,702.16. Of this sum the International Health Board contributed Rs. 19,959.69, the Government's expenses being Rs. 9,742.47. Government's contribution was at the rate of 50 per cent beginning from the 16th May. The number of persons examined being 12,540, the cost per person examined was Rs. 2.36, Rs. 0.77 borne by Government and R. 1.59 by the International Health Board.

7. *Sanitation.*—The Medical and Health Department has expended a great deal of energy in trying to control and improve the sanitation, and regulations have been adopted dealing with trenching and the disposal of Engrais. Unfortunately it took a considerable length of time to accomplish results on account of existing contracts and local conditions.

1,698 pail latrines were completed by December, 31st in Moka District, and the pail contents disposed of by deep trenching. In some sections pail latrines were built and in other places the pit latrine was built where it would not pollute sub-soil water.

The number of pit latrines completed up to December 31st, 1923, is given in the following table, which shows that a considerable amount of work was accomplished in areas other than Moka.

PIT LATRINES	
Moka District	2,257
Port Louis (extra-urban area)	601
Black River (part only of the district falls under the Regulations)	220
Grand Port	1,584
Pamplémousses	420
Quatre Bornes	698
Total	5,780

8. *Remarks.*—The sanitation in Moka was not complete far enough in advance of the treatment campaign to prevent an early re-infection, as the soil was still polluted in many sections. It is believed that although a re-examination would show a fairly high percentage of re-infection, the reduction in mass infection has been well worth while, and with the sanitation advanced, and the custom gradually being established of using the latrine instead of the canefield, a great amount of good can be done in post campaign work at a later date.

APPENDIX XV.

SUMMARY OF RADIUM APPLICATIONS IN 1923.

No.	Indoor	Out door	Disease	No. of applica- tions	Result.
1	...	o.d.	Epithelioma of tongue	23	Improved
2	..	o.d.	Carcinoma of breast	21	do.
3	...	o.d.	Rodent ulcer of the forehead	18	Cured
4	...	o.d.	Rodent ulcer of the nose	14	do.
5	i.d.	...	Carcinoma of breast... ..	5	Not Improved
6	...	o.d.	Rodent ulcer of the cheek	21	Cured
7	i.d.	...	Carcinoma of upper jaw	21	Not Improved
8	...	o.d.	Rodent ulcer of the cheek	8	Cured
9	..	o.d.	Rodent ulcer of the nose	13	do.
10	...	o.d.	Rodent ulcers of the forehead and nose	25	do.
11	i.d.	...	Rodent ulcer of the nose	30	do.
12	...	o.d.	Rodent ulcer of the ear	16	do.
13	...	o.d.	Rodent ulcer of the cheek	8	do.
14	i.d.	...	Carcinoma of breast	12	Not Improved
15	...	o.d.	Rodent ulcer of the temple	11	Cured
16	i.d.	...	Rodent ulcer of the ear	11	do.
17	...	o.d.	Carcinoma of breast	30	Improved
18	...	o.d.	Epithelioma of lower jaw	36	Cured
19	...	o.d.	Rodent ulcer of the ear	18	do.
20	...	o.d.	Rodent ulcer of the nose	14	do.
21	...	o.d.	Rodent ulcer of the face	6	do.
22	i.d.	...	do.	27	do.
23	i.d.	...	do.	23	do.
24	i.d.	...	Adenoma (cervical)	5	Improved
25	...	o.d.	Rodent ulcer of the cheek	9	Cured
26	...	o.d.	Rodent ulcer of the lower ciliary ridge ..	24	do.
27	...	o.d.	Rodent ulcer of the face	15	do.
28	...	o.d.	Rodent ulcers of the forehead and super- ciliary ridge	8	Still under treatment
29	...	o.d.	Ascellary Carcinoma... ..	6	do.
30	...	o.d.	Rodent ulcer of the face	1	do.
Total No. of applications				479	

APPENDIX XVI.

SUMMARY OF X RAY WORK DONE AT THE CIVIL HOSPITAL
IN 1923

1. Radiographs	No. 103
2. Radioscopic examinations	21
Radiotherapy for :	
1. Fibroma Uteri	10 — 279 Irradiations
2. Carcinoma of liver	1 — 3 ”
3. „ of breast	1 — 3 ”
4. Goitre (a) exophthalmic	2 — 51 ”
(b) glandular	1 — 30 ”
5. Lymphodenitis	3 — 3 ”
6. Sycosis Menti	1 — 12 ”
7. Tubercular gland... ..	2 — 10 ”

APPENDIX XVII.

SUMMARY OF LABORATORY WORK DONE AT THE CIVIL HOSPITAL DURING 1923.

Specimens	Nature of research	No.
Blood films	Filaria B.	13
do.	Malarial parasites ..	29
do.	Plague bacilli	1
Coating of Tonsils	Loeffler's bacilli	6
Cerebro-spinal fluid	Diplococci intra-cellularis of w. ...	2

Specimens				Nature of research				No.
Smear preparations from buboes	...	...	...	Plague bacilli	...	...	...	11
do.	do.	lungs, spleen & liver	...	do.	...	...	...	4
Sputum	...	...	...	do.	...	...	...	1
do.	...	...	...	Tubercle bacilli	...	...	...	436
Stools	...	...	...	Balantidium coli	...	...	...	2
do.	...	...	...	Strongyloides intestinalis	...	...	...	1
do.	...	...	...	Amœba dysenteria	...	...	...	33
do.	...	...	...	Ova of ankylostome duodenale	...	...	...	142
do.	...	...	...	Ova of ascaris : trichocephalus	...	...	...	135
Tapping of scrotum	...	...	...	Filaria B.	...	...	...	2
Urine sediment	...	...	...	do.	...	...	...	4
do.	...	...	...	Ova of bilharzia hæmatobia	...	...	...	63
Tapping of bladder	...	...	...	do.	do.	...	...	1
Urethral discharge	...	...	...	Gonococcus	...	...	...	52
Vaginal	do.	...	...	do.	...	...	...	7
NON BACTERIOLOGICAL								
Microscopical examination of urine sediments	...	...	...	...	...	...	...	162
Quantitative analyses of urine	...	...	...	...	...	...	...	1,078
Qualitative analyses of urine for candidates examined by the Board and for employment into the Civil Service	...	...	...	...	...	...	...	281
Differential count of white blood corpuscles...	...	...	...	...	...	...	...	4
Enumeration of red blood corpuscles	...	...	...	...	...	...	...	1
do. white blood corpuscles	...	...	...	...	...	...	...	1

APPENDIX XVIII

ANNUAL REPORT ON PORT LOUIS FOR THE YEAR 1923.

Vital Statistics.—The following figures for the town and district of Port Louis are taken from the report of the Honourable, the Registrar General.

Population : 51,769.

Birth Rate : 39.9 per thousand.

Death Rate : 34.1 per thousand.

The death rate shows a noteworthy improvement upon that for the previous year (42.6 per 1,000).

Reorganisation of the Sanitary Staff.—A certain amount of reorganisation and consolidation of the sanitary personnel was undertaken during the early part of the year. The need for reorganisation had gradually developed as conditions changed for the better, and was met by a series of adjustments which adapted the machine to the different type of work it had to do.

The most important change was the extension of the responsibilities of the Sanitary Inspectors. In the past they really only dealt with the detection of nuisances, the supervision of domestic latrines and the night soil service, work which, however important, did not tend to lend much interest to the daily round or to develop to any useful extent the qualities of self-confidence and general capability which are essential to success. Anti-malaria work was virtually out of the Sanitary Inspector's province, being entrusted to a special gang working under the supervision of a Controlling Officer who was also responsible to the M.O.H. for the supervision of the staff of the special plague service, especially regarding the fumigation and disinfection of premises. After mature consideration the post of Controlling Officer was abolished, the plague services and anti-malaria gangs were reorganised so as to place them directly under the control of the Sanitary Inspectors who were thus given a more responsible, but at the same time a more stimulating share in the duties of the Department.

Towards the end of the year the remainder of the anti-malaria work in the Port Louis District passed into the charge of the M.O.H. who thus assumed the responsibility of all the sanitation of the District.

An important result of the reorganisation referred to above was that provision could be made to reinforce the weaker branches by the creation of new posts out of the savings effected by the change. This was duly accomplished.

It is a pleasure to record that the Sanitary Inspectors and Guards welcomed the new arrangements and did their best to do their part in making it a success. There was a certain amount of risk in making such profound changes, and the fact that these changes have been successfully brought about is due almost wholly to the enthusiasm they have displayed throughout the year.

Class of Instruction.—While the reorganisation was being worked out, the Department's responsibility to the Sanitary Staff was fully recognised, and it was decided to hold classes of instruction which would help the personnel to a fuller appreciation of their duties. On April 12th the Director inaugurated the class by delivering to the members a short and stirring address. The class, which is held every Thursday afternoon, is attended by all the Sanitary personnel of the Northern districts.

The M.O.H. Port Louis has delivered lectures on elementary physiology and hygiene, the epidemiology of the commoner communicable diseases, disposal of night-soil, and water supply; while Sanitary Inspector Purvis has given 8 lectures on the elementary mathematics of Hygiene. The programme of lectures has been based on the syllabus of subjects issued by the Royal Sanitary Institute and it is hoped that ultimately a certain number of candidates will be prepared to present themselves for the examination for the certificate of competency granted by the Institute.

The average attendance at the lectures and demonstrations has been 30, and 56 meetings were held during the year.

In this connection thanks are due to the Honourable, the Colonial Secretary for permission to use a large room at Government House for the meetings, to the Director of the Ankylostomiasis Department for the loan of microscopes, charts and specimens for the illustration of the lecture on hookworm infection and to the Director of the Government Laboratory, Reduit, for sundry specimens.

Night Soil Service.—On August 1st this service was taken over by Government from the Roche Bois Manure Company and two subsidiary contractors. That the change was effected with comparatively little dislocation of the actual work was due in large measure to the courtesy extended to the Department of the M. O. H. by the staffs of the contractors who had previously conducted the service.

An initial shortage of metal buckets was made up by the provision of wooden buckets, which were gradually replaced as the metal pails became available.

The scheme for taking over the Night Soil Service provided for two tipping depots. One was to be located over the outfall sewer at Cassis while the other was to be connected with a septic tank and percolating filter situated at Paul and Virginie Street. In August the Cassis depot was completed so far as the actual tipping chamber was concerned although the disinfecting, tarring and drying sheds had not yet been erected. The second chamber was not available for use and it was necessary completely to recast the transport organisation to meet the situation. The provision of a motor lorry and five extra bullock carts enabled the work to be carried on.

Under the circumstances it was thought better to aim at a service performed with regularity, thrice weekly than to attempt the more ambitious scheme of a daily service. This policy has been followed and results have justified its adoption.

The total number of services undertaken at present is 3,000. The daily average number of buckets treated has been in the neighbourhood of 1,000.

The service is worked on the double system. The foul pail is removed and replaced by a clean pail.

Scavenging Department.—This branch of the work has now settled down into its routine.

On an average, 20 tons of garbage is collected and dealt with daily.

The place of disposal is a large piece of waste land in the neighbourhood of Fort Victoria. About two to three tons of the refuse is daily incinerated in a locally made incinerator, the remainder is burned in the open.

This method of disposal is costly and is productive of nuisance and should be replaced as soon as possible by one of the alternative modern methods at present under consideration.

Domestic Latrines.—Concurrently with the organisation of the Government Night Soil Service steps were taken to improve the domestic latrines. A simple type of fly-proof latrine was drawn up. The pail container is a concrete box with a sloping front, closed by a movable ferro-concrete slab. The top of the apparatus contains an oval aperture measuring 14 by 8 inches. When the latrine is not in use the aperture is closed with a wooden cover to exclude flies.

The floor of the apparatus contains a directing groove for the night soil bucket, so that it is impossible for the bucket not to be properly centred without the user being aware of the fact. The whole apparatus being of concrete rendered in cement can be easily cleaned.

Several types of automatic closing fly-proof lids were considered, but rejected for general use on account of their liability to get out of order.

To secure uniformity of workmanship and proper control of the quality of the materials used in the construction of the latrines, it was decided that a government contractor should undertake the work.

Proprietors of premises in the town signed agreements giving permission to the government contractor to install the latrines on their premises and undertaking to pay the cost of the apparatus when the work was completed. It was found that there was a proportion of house-owners who could not meet the full cost of the latrine at once and His Excellency, the Governor, kindly sanctioned the provision of an advance account to meet their case.

Individuals who wish to construct the latrines on their own account are furnished with the specifications.

Although the scheme was first mooted in June it was not until October that the contract was entered into and the contractor began work. The first attempts were not satisfactory and were rejected by the Department. The contractor has since improved his work and steady progress is now to be looked for. By December 31st, 42 latrines had been completed by the contractor.

Messrs. the Albion Dock Company were the first proprietors to install the new latrines in Port Louis.

Water Carriage System.—The work in connection with the installation of the water carriage system of sewage disposal was confined to the construction of the main out-fall sewer from the tipping chamber to its termination. No extension of the system was made in the town itself.

Before the water carriage system is extended it will be necessary to provide water constantly in the town so that the system may be able to function properly at any time.

Under present conditions the water supply over part of the sewered area is cut off for several hours each day. The effect of this is to throw every water closet temporarily out of action, and to convert several of them into horrible, if temporary, nuisances.

Extra Urban Area.—It was at first decided to adopt pit latrines throughout the extra-urban area. Trial pits had been dug during the previous year and the character of the subsoil ascertained. Later, on recommendations made by Dr. Castel, a bucket service was inaugurated for the Vallée des Prêtres area on account of the danger of floods and of the possibility of the pollution of the Lataniers river from the pits.

Floods and defective workmanship combined to wreck many of the newly excavated pits during the early part of the campaign. A bucket service was quickly improvised to deal with the situation

and the excreta were buried in deep trenches at Bois Savon. The trenches were 7-8 feet in depth and were closed when the faecal material was within 3 feet of the surface. Government took the situation in hand. The wrecked pits were dug out and shored internally with old railway sleepers kindly provided by the Railway Department. As the pit latrines were completed the bucket services were withdrawn.

The Honourable, Jérôme Tranquille, Junior Member for Port Louis, showed the greatest interest in this work and materially assisted the department in this connection.

Out of a total of 622 pit latrines required for the Extra Urban Area of Port Louis 599 had been completed by the end of the year. The remainder were under construction.

Water Supply.—The construction of the plant for the rough filtration with subsequent chlorination of the water derived from the Grand River North West was begun in July. By the end of the year the work was well under way.

The repair of defective regards and the substitution of ferrule taps for prise cocks, have given constant occupation to the staff of the Drainage Authority.

COMMUNICABLE DISEASES.

Three communicable diseases are of major importance in Port Louis :—they are Malaria, Plague and Enterica.

Anti-Malaria Work.—225,293 feet of existing drains and canalised streams were upkept. In addition, a small marsh at Grand River North West Village was drained into the river mouth. This marsh harboured the larvae of *A. mauritanus* as well as those of *A. costalis*.

The filling in of the marsh at Les Salines was completed in July. This piece of work, begun in 1922 under the direct supervision of the Director, has resulted in 17,000 square yards of land being reclaimed. In time it is hoped that it will be developed as a recreation ground.

The clearance of a zone half a mile in depth in the Pitot and Tranquebar Valleys has continued throughout the year. Until the end of September the work was carried out by the Malaria Authority. The object of the zone, which was recommended by Dr. Balfour, is to prevent the invasion of the city by mosquitoes coming from the jungle areas in the upper parts of the valleys. By the end of the year an area of 195 acres had been cleared of cactus and other rank vegetation in the locality. Unfortunately it was not found to be possible to undertake work in the valleys themselves, only the Crown Lands on the adjacent hills having been dealt with. The work is carried out in three operations, cutting and stacking the cactus, allowing a period for dessication and finally burning it as often as is necessary.

Arrangements were made to have the trees in the cleared area removed by a contractor. It is a pity that the contractor has failed to appreciate the importance of the time factor in the fulfilment of his contract so that his progress has not been rapid as it was expected to be.

In the Intra-Urban area the anti-mosquito campaign has been steadily pursued throughout the year. *Culex* and *Stegomyia* Genera flourish in the town. The difficulties in the way of progress in eradicating their breeding places are enormous, and at times the situation seems to be almost hopeless. The profoundly dilapidated condition of the majority of the premises in the town is responsible for over half of these mosquito breeding places. Defective roof gutters, ill-paved yards, badly laid drains, ruinous masonry work, flooded cellars, to mention only a few, render the detection of such places difficult and their elimination tedious.

In addition to the abovementioned Genera, one Anopheline, *A. costalis* is also to be found to some extent within the Municipal Boundary. This is partly due to the fact that there are many vacant plots and waste areas in the town so that some parts resemble open country with only occasional houses scattered over a comparatively wide area, while another reason is that the mosquito appears to have become to some extent domesticated, inasmuch as its larvae are to be found somewhat widely distributed in the typically urban portions of the town, in odd pools, on paved drains and in other small collections of standing water.

The general anti-malaria work of the Port Louis District was taken over by the M. O. H. from the Malaria Authority on February 28th.

The work in connection with the half-mile anti-malaria zone was taken over on 29th September.

Plague.—The following table shows the monthly incidence of plague in Port Louis during the year 1923.

Month	Bubonic		Septicæmic		Pneumonic		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
January ...	8	7	9	9	1	1	18	17
February ...	4	3	2	2	Nil	Nil	6	5
March ...	6	6	2	2	Nil	Nil	8	8
April ...	2	2	Nil	Nil	Nil	Nil	2	2
May ...	3	3	3	3	Nil	Nil	6	6
June... ..	1	Nil	3	3	Nil	Nil	4	3
July ...	1	1	Nil	Nil	2	2	3	3
August ...	8	6	Nil	Nil	Nil	Nil	8	6
September ...	5	4	3	3	Nil	Nil	8	7
*October ...	15	12	4	4	1	1	20	17
November ...	15	11	4	4	3	3	22	18
December ...	6	5	6	6	1	1	13	12
Totals ...	74	60	36	36	8	8	118	104

* Includes 1 death at Lazaret G. R. N. W.: but found, after registration, to be derived from Quatre Bornes.

From the figures given above it will be seen that the case mortality for all cases is 88%.

The septicæmic and pneumonic forms are almost always fatal; the case mortality for bubonic plague has been 81%.

It will also be noted that cases of plague have been detected in Port Louis throughout the year, although the largest number of cases occurred during the hot weather.

Plague prophylaxis. As a routine prophylactic measure mass inoculations with anti-plague vaccine were practised. The work done in this respect is summarised herewith.

Government Departmental Staffs	...	...	343
School children and teachers	...	...	4,665
General Public	...	...	1,021
Total	...	...	6,029

Rat-proofing of houses was begun in November, and it is hoped that as the work progresses there will be a proportionate diminution in the number of plague infected areas in the town.

Rat Fleas. During November and December some sixty fleas were collected from Port Louis rats. With the exception of three defective specimens that could not be identified all of the insects resembled *Xenopsylla cheopis*. *Xenopsylla astia* has not yet been encountered in Port Louis, but the work of collection and examination will be continued with a view to ascertaining whether *X. astia* exists here or not.

Twelve of the specimens were found in a wooden bin containing rice in a grocer's shop. Plague-infected rats had been found previously upon the premises which were fumigated by burning sulphur in open burners as a disinfection measure after disinfection. When the premises were opened up after the fumigation the fleas were found to be apparently unaffected by the gas, although roaches had been killed off in large numbers. It is possible that the gas had failed to penetrate the air spaces between the individual grains, which retained sufficient oxygen to tide the fleas over the period of fumigation, while the larger insects whose oxygen demands were presumably greater succumbed, even although they are notoriously more difficult to kill than fleas. Following upon this interesting observation, steps were immediately taken to revise the technique of fumigation by sulphur with a view to making it more effective.

Model Village Cassis. 33 new houses were constructed during the year. Certain lodges were set aside for accommodation of persons evicted from their houses as a result of the rat-proofing campaign, and this measure has contributed largely to minimise the discomfort and worry which would otherwise have been their lot if the displaced tenants had been compelled to seek accommodation in Port Louis itself.

The efforts that have been made by private individuals to erect new houses have had practically no effect in reducing the overcrowding in congested areas.

Anti-rat campaign. During the year 55,273 rodents were destroyed and submitted to microscopical examination for plague infection. 534 of the total number of rodents examined were found to harbour the *Bacillus pestis*.

The means taken for the destruction of rodents were :

- (a) poisoning by poisoned baits.
- (b) trapping in spring and cage traps.
- (c) trapping by means of "glue boards."

The glue boards were employed originally at the suggestion of Dr. Balfour, and they have given such satisfaction that their use has been gradually extended. One great advantage of the glue board is that it captures a great proportion of the rat-fleas as well as the rat itself and so limits the spread of infection.

Owing to a temporary shortage of imported rat varnish, it was necessary to attempt to manufacture a substitute locally. After several experiments a very satisfactory lime was produced.

The method of manufacture is as follows.

Heat two litres of boiled linseed oil, and when the oil has boiled for 30 minutes, add 5 kilos of powdered resin in small quantities, stirring all the time.

The stirring and heating are continued for about half an hour, by which time the mixture should be of the required viscosity—as determined by trial. It is then ready for use.

Enteric Fever.—The following figures, which include notifications under the term "continued fever" show the incidence of fevers of the "enterica" group, month by month, throughout the year

Month	Cases	Deaths
January	1	Nil
February	4	Nil
March	3	1
April	7	4
May	10	2
June	8	1
July	6	5
August	11	1
September	1	Nil
October	Nil	Nil
November	1	1
December	6	4
Total	58	19

It would be unduly optimistic to suppose that the above figures gave a true picture of the case incidence of the disease. It is almost certain that many mild cases escape notification on account of the fact that a qualified medical practitioner is seldom called in to see the patient, or, if he does happen to be summoned, is given little real opportunity to make a diagnosis of the malady.

It has been practically impossible to determine the origin of the cases. There has been no evidence brought forward to incriminate the milk supply. The detection of carriers will always be an unnecessarily difficult matter so long as there is an absence of proper laboratory facilities in Port Louis itself. In fact, under the circumstances, beyond following up the medical history of contacts, nothing has been attempted so far.

In the absence of definite evidence to the contrary it has been thought that the water supply has been the medium of spread of the infection. An improvement in the quality of the water supply should therefore reduce the case incidence and the death rate from this group of fevers. The "residual typhoid" will then be more easily investigated and with better prospect of success.

MARKETS AND ABATTOIR

Central Market.—No sanitary improvement in the condition of the Central Market has been undertaken this year and the place is still more or less haunted by mangy dogs.

Dogs.—In spite of the fact that there is a law permitting the humane destruction of these miserable creatures, local prejudice has hitherto been a powerfully obstructive factor to the work of reducing their numbers. There is some sort of superstition that a person who kills a dog will be plagued by all sorts of calamities and this superstition is interpreted literally and without any consideration whatever being given to the motive for the destruction of the animal. When one considers that the people of Mauritius, as a whole, are, to some degree, dog fanciers it appears to be somewhat anomalous that so many of the doggy tribe are allowed to be at large in a state of chronic starvation and misery. The 745 killed in the lethal chamber during the year appears to be a very small proportion of the number that might possibly be dealt with.

Apart from humane considerations it must be remembered that the dog is almost the sole distributor of rabies in civilised countries, and that it may be the means of the spread of certain internal parasites amongst human beings. Although rabies happens to be absent from the Colony, the presence of large numbers of uncontrollable dogs in the island is a potential menace to the safety of the country in the event of the quarantine barrier breaking down and rabies becoming established.

The Sanitary defects of the meat section of the Central Market are mostly of a structural nature and it is to be feared that the attempt of any remedy short of demolition and reconstruction will be only palliative.

Taken as a whole, the Central Market of Port Louis is of no credit to the Municipal Corporation either from an hygienic or æsthetic point of view

Smaller Markets.—The markets at Plaine Verte and Cassis (the La Butte Market) reflect faithfully all the insanitary features of the Central Market but on a smaller scale. These markets could be easily screened and furnished with a cement concrete floor at a cost which would not be prohibitive.

Municipal Abattoir.—There is little to record in the way of sanitary progress in this locality.

A waiting pen for cattle was completed during the year. It is furnished with a water trough. The archways formerly used as entrances to the slaughter hall have been closed up with masonry work and there is now only one entrance to the slaughter hall. Animals awaiting slaughter are now spared to some degree the sights of the killing room.

A pipe was constructed to conduct the drainage effluent further out into the Mer Rouge. This pipe becomes blocked periodically.

SANITARY CONTROL OF FOODSTUFFS.

General.—The subjoined table shows the results of the work of this section of the Department for the year.

Table of foodstuffs seized by the Sanitary Authority as being unfit for human consumption.

Foodstuffs	Quantity	Method of disposal
Garlic ...	195 kilos	Burnt
Fish ...	15 kilos	Petrolised and burnt
Tinned Fish ...	3,769 tins	Dumped into sea
Dried Fish ...	7,625 kilos	Animal Manure
Cheese ...	65 kilos	Burnt
Salted Beef ...	3,200 kilos	Dumped into sea

Milk.—The poor quality of the milk supplied in the town and district has given the department much anxiety.

The annexed graph shows the extent of sophistication detected during twenty one months. To begin with much difficulty was experienced in incriminating wholesalers who sent adulterated milk from the country districts to be sold in Port Louis. In September 1922, however, a test case was undertaken by the department against one of these individuals and judgment was given in favour of government. It was hoped that the result of the test case would have an effect in improving the quality of imported milk, and so of the general supply. That this was not the case can be seen in the graph. The fall in the percentages recorded during the period March to June is due probably to the greatly increased number of samples that was taken at that time.

ACKNOWLEDGMENTS.

It is my pleasant duty to record my appreciation of the assistance and courtesy extended to me by the Director of the Medical and Health Department.

The Sanitary Inspectors and Guards, by their cheerful and willing cooperation, have made the year's work very pleasant indeed to me, and, I hope, profitable to the community we have the privilege to serve.

12th May, 1924.

J. BALFOUR KIRK,
M.B., D.P.H., D.T.M. & H.

YEARLY RETURN OF INSPECTIONS MADE AND ACTION TAKEN BY THE
SANITARY STAFF OF M. O. H. PORT LOUIS FROM JANUARY
TO DECEMBER, 1923.

<i>No. of Visits paid to :</i>						32,754
Private premises	...	...	...	...	...	463
Lodging Houses	...	...	...	...	...	1,979
Shops	...	...	...	...	...	198
Markets	...	...	...	...	...	200
Bake-Houses	...	...	...	...	...	52
Slaughter Houses	...	...	...	...	...	127
Butchers' Shops	...	...	...	...	...
<i>Special Enquiries in regard to Sanitary matters &c.,</i>						293
Control of cremations and exhumations	...	...	...	...	...	2,903
<i>No. of Stables, Pigsties, Cowsheds inspected</i>	...	...	...	...	...
<i>Government Establishments inspected.</i>						
Public latrines—Gratuitous latrines—Noxious factories—Camps of labourers—						
Docks—Water courses—Cemeteries—Sea-shores	...	...	...	...	...	5,651
No. of visits paid to waste lands in town and district of Port Louis	...	...	...	...	...	1,542
Attendance of Sanitary Officers at Law Courts	...	...	...	...	...	193
No. of Dhobies' workshops visited	...	...	...	...	...	590
Do. Lighters in harbour	...	...	...	...	...	560
<i>Nuisances on private premises :—</i>						
Notices and requests issued	...	...	...	...	...	2,231
No. complied with	...	...	...	...	...	1,596
No. not complied with	...	...	...	...	...	635
<i>Contraventions of Sanitary enactments detected</i>	...	...	...	...	...	669
Cases prosecuted	...	...	...	...	...	281
Amount of fines	...	...	...	...	...	Rs. 1,676.25c.
"No. of certificates transmitted—to the Municipality (Ordinance 23 of 1903) for abatement of public nuisances" existing in the town of Port Louis...	...	...	...	...	...	333
"No. of orders issued by Sanitary Authority for improvements" and removal of nuisances as contemplated in Ordinance 21 of 1900	...	...	...	...	...	216
No. complied with	...	...	...	...	...	145
<i>Nuisances bearing on Public Health referred to Government for action:—</i>						
No. referred to Public Works Dept.	...	...	...	...	...	411
do. Railway	...	...	...	...	...	52
do. Forest	...	...	...	...	...	14
do. War	...	...	...	...	...	7
do. Agriculture	...	...	...	...	...	18
do. Sanitary Engineer...	...	...	...	...	...	740
do. Drainage	...	...	...	...	...	1,795
<i>Application of Swine destruction Ordinance</i>						
No. of pigs shot by Police in Extra Urban Area	...	...	...	...	...	41
MILK CONTROL.						
Total No. Contraventions	...	...	...	...	...	193
do. Convictions	...	...	...	...	...	69
do. Fines	...	...	...	...	...	Rs. 6,900 & costs
do. Warnings	...	...	...	...	...	121

26th May, 1924.

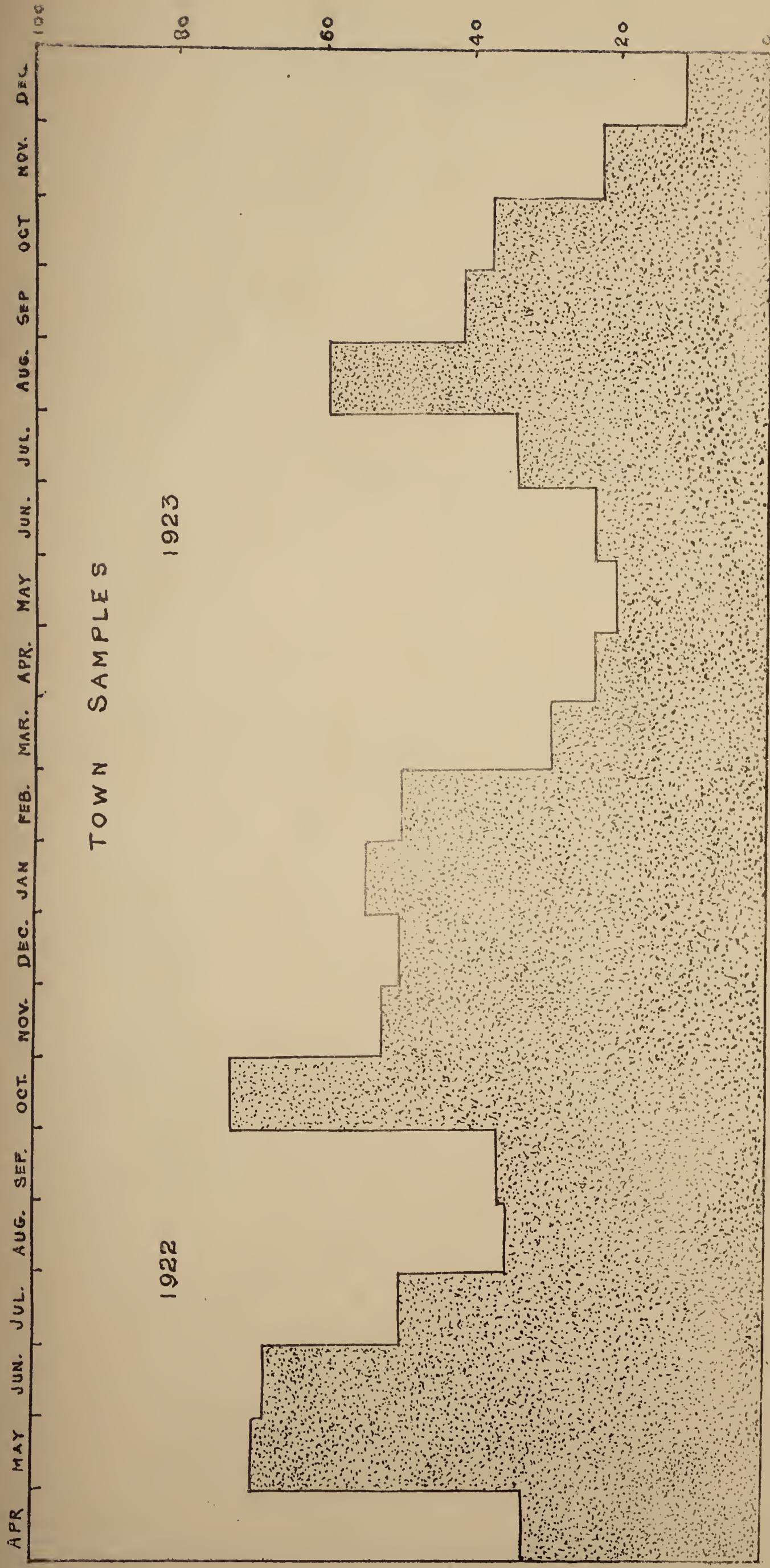
J. BALFOUR KIRK.

APPENDIX XIX.

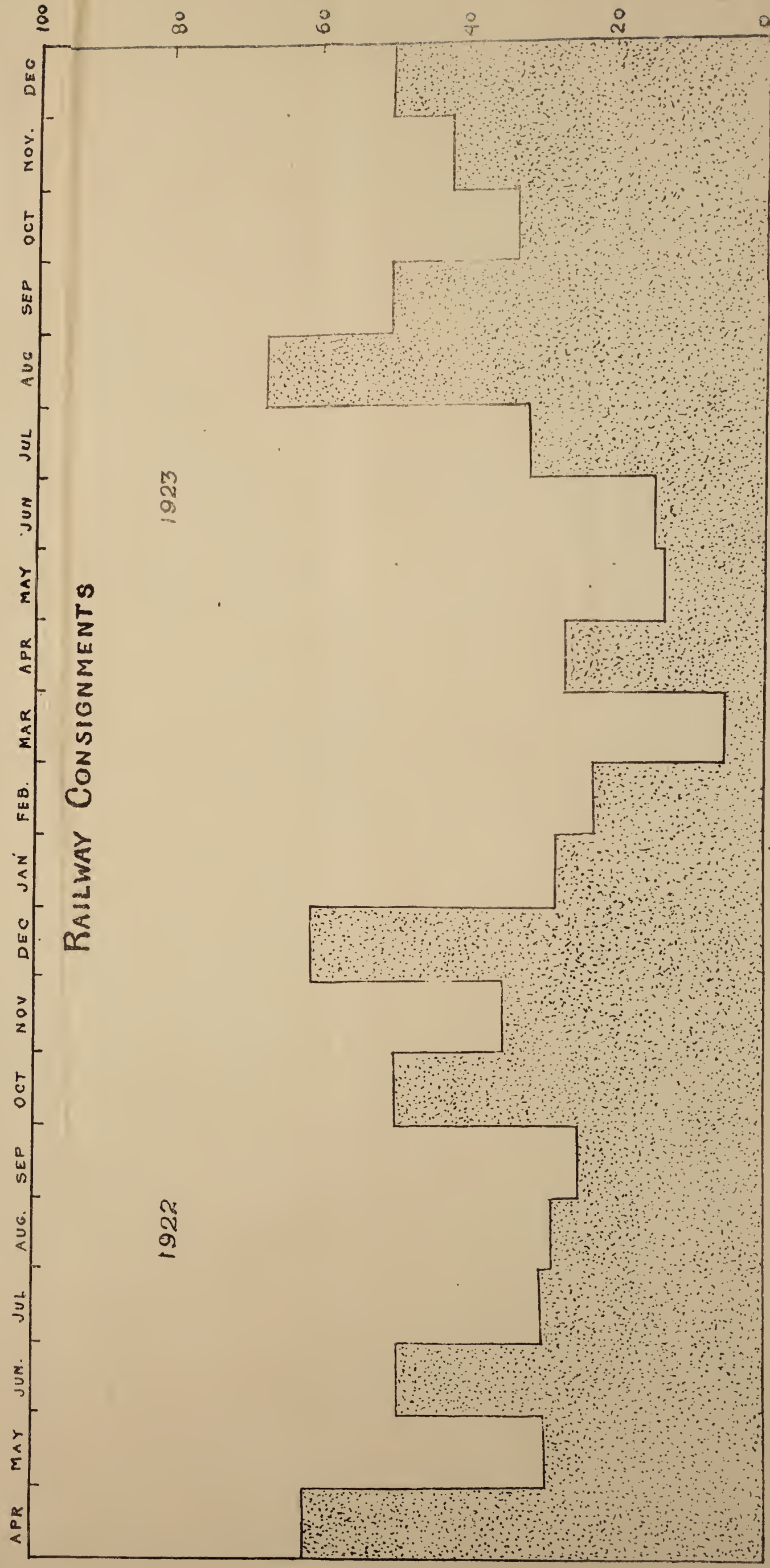
STATEMENT SHOWING THE NUMBER OF CATTLE SLAUGHTERED IN 1923.

Slaughter House.	From January to May.	From June to December.	Total.
Port Louis (Municipal)	4,729	6,908	11,637
Rose Hill	1,890	3,004	4,894
Flacq { Central Flacq	162	332	494
{ St. Julien	43	57	100
Pamplemousses	196	353	549
Cnrepipe	1,483	1,873	3,356
Black River : Bambous	25	43	68
Rose Belle	200	365	565
Mahébourg	547	951	1,498
Rivière des Anguilles	60	90	150
Souillac	166	291	457
St. Pierre	246	407	653
Whole Colony	9,747	14,674	24,421

MILK CONTROL PORT LOUIS



The black columns show percentage of samples of milk for each month found on analysis to be adulterated



APPENDIX XX.

SCHOOL MEDICAL INSPECTIONS IN PORT LOUIS

The following schools were inspected during the 1st half year :—

1. Sacré Coeur, Pamplémousses Road.
2. Jean Lebrun, Paliaca Street.
3. St. Vincent de Paul, Nicolay Road.
4. Père Laval, Nicolay Road.
5. Roche Bois Government School.
6. Bon Secours, Edith Cavell Street.
7. Women's Training, Edith Cavell Street.
8. Champ de Lort Government, St. George Street.
9. Immaculée Conception, Madame Street.
10. Loreto Convent, Corderie Street.
11. St. Joseph Aided, Magon Street.
12. Church of England Aided, Arsenal Street.
13. Soonee Soortee, Corderie Street.

The principal diseases noticed were :—

	1st half year 1923	1st half year 1922
Pediculosis	62	212
Scabies	8	52
Skin diseases	10	12
Defective eyesight	21	35
Ear troubles	16	27
Tonsils and adenoids	10	7
Bad teeth	98	75
Rickets	1	...
Malaria	343	567
Ankylostomiasis	494	992
Schistosomiasis	13	14
Other worm infection	162	300

The number of pupils examined amounted to 2521 as against 2658 for the same period in 1922.

The above figures show a decided improvement as regards the number of children affected with Pediculosis, Scabies, ear troubles, malaria, ankylostomiasis and other worm infections. Tonsils and adenoids show a very slight increase.

The figure for Malaria shows, I am glad to say, a considerable decrease, this in spite of the heavy and continuous rainfall we have had during practically the whole period under review.

The figure for Ankylostomiasis also shows a marked decrease, due very probably to the effective measures taken by Dr. Hampton who so devotedly treated in the schools of Port Louis all the children affected with that disease.

It must be borne in mind that this heading comprises all cases of anæmia detected among the children during my inspection irrespective of the cause or causes which might have brought that condition, that is to say, enlargement of the spleen, general debility, defective development, worm infections and poverty.

The figure for Schistosomiasis is about the same.

There is a marked decrease in the figure for other worm infections, due very likely to the treatment applied for Hookworm by Dr. Hampton.

343 pupils were found with enlarged spleen, giving a spleen rate of 13.6% as against 21.3 for the same period last year. The average spleen is 1.6 as against 2.2 for the same period in 1922.

On the whole and notwithstanding the favourable climatic condition for the spread of malaria which prevailed during the greater part of the time between February and June, I am glad to say, that a marked improvement, calculated on sufficient data, has been registered as regards the decrease in both the percentage and the average spleen noticed during this first half year.

The following schools were inspected during the 2nd half year :—

St. Jean Baptiste de la Salle	339 pupils
Signal Mountain	278 „
Cassis Road	295 „
Vallée des Prêtres	157 „
Western Suburb	389 „
Ste. Croix	93 „
La Paix Street Convent	273 „
G. R. North West	98 „
Eastern Suburb Government (Canal Street)	163 „
St. Joseph, (Brabant Street)	221 „
Eastern Suburb (Infants')	253 „
Total	2,559 „

The number of pupils examined amounted to 1977 as against 1189 for the same period in 1922.

The principal diseases noticed were:—

Pediculosis	68	as against 62	for 1st half year 1923
Scabies	36	„ 8	„ „
Skin diseases... ..	21	„ 10	„ „
Defective eyesight	23	„ 21	„ „
Ear troubles	66	„ 16	„ „
Tonsils and adenoids	42	„ 10	„ „
Bad teeth	202	„ 98	„ „
Rickets	Nil	„ 1	„ „
Malaria	223	„ 343	„ „
Ankylostomiasis	226	„ 494	„ „
Schistosomiasis	5	„ 13	„ „
Other worm infection	129	„ 162	„ „
The number of Spleens with Index "Small"	...	...	59
The number of Spleens with Index "Medium"	...	...	98
The number of Spleens with Index "Great"	...	...	66

The above figures show a decided improvement again as regards the number of children suffering from Malaria and Ankylostomiasis.

The number of children affected with ear troubles and inflammation of the tonsils has increased in a marked degree owing to the presence of Influenza which prevailed during that time of the year.

The number of children affected with scabies has also increased. As this disease is very catching, I beg to submit that the Director of Public Instruction be requested to inform the Head Teachers not to receive as pupils in their schools, children suffering from that complaint. Same measure should be taken as regards children having lice.

The figure for ankylostomiasis shows a marked decrease. It must be borne in mind that under this heading are comprised all cases of anæmia, due to enlargement of the spleen, general debility, defective development, worm infection and poverty.

The figure for Schistosomiasis and other worm infection has slightly increased. 223 pupils were found with enlarged spleen giving a spleen rate of 11.2% as against 13.6 for the first half year. The figure for 1922 was 21.3%.

The average spleen, taking the normal spleen as 1, is 1.5 as against 1.6 for the first half year. The figure for 1922 was 2.2

HYGIENE AND SANITATION

Water Supply.—The water is obtained from G.R. North West and Bathurst Canal Reservoirs. These waters are given to the pupils direct from the taps,—no filter of any kind is used in any of the schools.

Buildings.—The buildings are, as I have already said in my former reports, private residences altered and modified so as to be used as schools. Most of them do not answer the purpose for which they are used.

Accommodation.—Inadequate in practically all the schools.

Ventilation.—The number of windows and doors, are as a rule, sufficient, but ventilation is very often interfered with owing to their being closed on account of the wind or sun.

Latrine System.—Some of the schools in the extra urban area of Port Louis have been provided with the Pit system. This method of disposal seems, up to now, to work in a satisfactory manner. They should be regularly disinfected. The buildings in some of the schools are defective and none of them is fly-proof.

F. L. KEISLER.

APPENDIX XXI.

REPORT FOR 1923 RE: PLAINES WILHEMS

Plaines Wilhems consists of six townships viz :

- (a) Curepipe ;
- (b) Rose Hill and Beau Bassin ;
- (c) Quatre Bornes ;
- (d) Vacoas ;
- (e) Phoenix.

Local Boards of Commissioners exist for (a), (b) & (c). They are directly concerned in certain aspects of sanitary work, and the Medical and Health Department control and advise. In (d) & (e) and for extra urban areas in (a), (b) & (c), the Government is directly responsible.

The population of the District of Plaines Wilhems on 31st December 1923 is estimated at 78,667.

The death-rate is : 21 ‰

The birth-rate is : 39.7 ‰

Short statements of the main branches of sanitation follow.

R. O. SIBLEY,
M.D. (Lond.), D.P.H.,
M.O.H. Plaines Wilhems.

P.S.—School return re: Midlands and Curepipe is also appended.

The Curepipe Sanitation is divided into two Departments:—

- (a) Night Soil service ;
- (b) Scavenging service.

The work is done by the Medical and Health Department.

Night Soil service.—This service, as taken over from Stanley Cy. with only 10 carts, continued in the old routine of emptying a full dirty bucket into an empty one, leaving the dirty bucket for use in about 2/3 of the services done.

A clean bucket was substituted in 1/3 of the houses daily only.

By the closing of the year, thanks to our number of carts and animals having been increased to 17 and 32 respectively, just enough to cope with existing requirements, a clean disinfected and tarred bucket now replaces the dirty one in every house served during the day.

The carts do two regular trips daily each.

A tri-weekly service is done regularly for all private premises, while a daily service is given to all Government Establishments: Railway stations, schools and so forth, the Town Hall and market. The number of buckets in use as shown in the Subscribers' Book was 1,935 at the end of the year, an increase of 135 during the year.

The number of labourers for night soil on the roster was 41. At the latter end of December, on the arrival of the new labour from India, the entire labour service of night soil was replaced by new men; the number employed now is 52.

Accessory to night soil service, 5 men and 7 women are employed in care of animals in stables, work on the sewage and camp, and carpenters in repairing carts.

The final disposal of night soil is by French drains after treatment in septic tanks.

For the latter purpose an old engrais tank was converted and the drains referred to dug by the Public Works Department.

Scavenging Service.—When taken over from the Stanley Cy., this service had only 11 scavenging carts and 6 hand carts. These were augmented by hired carts and the loan of lorries from Port Louis, during the heavy season of hedge trimming and garden cleaning. A lorry was supplied in July 1922. In September 1923 another lorry was given, also 5 carts in November 1923.

Each lorry does about 6 loads of rubbish daily. The total number of loads of rubbish removed during the year is 2,154 loads.

Each cart does about 5 loads a day. The total number of loads removed during the year is 1490 loads.

41 men, 20 women and 11 children were employed on an average during the year in scavenging Curepipe.

In *Vacoas* and *Phoenix* both scavenging and night soil are carried out by contract and the same applies to *Rose Hill* and *Beau Bassin*, the Local Board of Commissioners being responsible.

In *Quatre Bornes*, a similar procedure used to apply, but the few remaining night soil tub services (about 60) are attended to by the Local Board and disposed of in deep pit; the Board also directly control the scavenging now.

In *Quatre Bornes*, 759 pit latrines have replaced tub services. In *Rose Hill* and *Beau Bassin* a similar campaign is nearly completed; about 1,000 pits have already been completed out of 2,000 services.

ANTI-MALARIA WORK IN PLAINES WILHEMS

Curepipe.—In Curepipe, 17 cantonniers under a moustiquier have carried out the usual cleaning of the existing channels and rivers.

New work has been started in the following places: the Mare Dioré, a section of the Gros Cerf, and the neighbourhood of the Slaughter House.

Several ponds and marshy places have been filled up, especially in the Botanical Gardens and in Forest Side. *Anopheles Costalis* have been found from time to time near the Slaughter House. *Anopheles Funestus* and *Anopheles maculipalpis* have not been found.

Anopheles Mauritianus is frequently met with in the forest ground and in springs and marshes which are so common in Curepipe.

Vacoas.—In the Vacoas section, the figures for those employed are: 18 cantonniers under a moustiquier. Beyond some new drains in Phoenix, there is no change.

Quatre Bornes.—In the Quatre Bornes Section, both *A. Costalis* and *A. Maculipalpis* have been found in Candos Mountain drains, and in the neighbourhood of Mount Corps-de-Garde, and in the intervening area between these two points—12 cantonniers and a moustiquier carry out this work.

Beau Bassin and Rose Hill.—In Beau Bassin and Rose Hill there are no works directly carried out by the Department. *A. Costalis* have been found in roadside gutters, in various water nuisances arising from the defective drainage channels from irrigation canals and broken water pipes and defective public fountains. These latter defects are common to all sections as are also defective "prises" and "regards." The irrigation canal work is the duty of Syndics and private owners and recourse has had to be made to the law Courts to effect repairs.

The other kinds of nuisances have been dealt with and repairs effected without trouble.

Dr. Castel completed an important section of "Major work" which has succeeded in draining a large tract of marshy ground to the S.E. of Candos mountain.

Tables are appended shewing identification of larvae carried out in the laboratory by Mr. Gébert. This gentleman received instruction from Dr. Mac Gregor and has since kept statistical records of the findings in the tables. He has also in his spare time mostly visited the area alluded to.

Mapping of all the work upkept is now complete. The Sanitary Inspector of Curepipe with an official of the Board spent many hours in their section, and the maps now include the "Collectors" (drains which carry sullage water from houses and road channel storm water). These maps have been given to the Board of Commissioners and this work has succeeded in clearing up of misunderstandings of many years duration.

For the other sections as well as for Curepipe, the Sanitary Engineer, Mr. Parsons, has been of great assistance and the maps prepared by him will prove of permanent value. He has also successfully executed many minor repairs, broken bridges, etc.

LARVAL FINDINGS.

Locality	Exact situation and nature of breeding ground
<i>Maculipalpis</i>	
Beau Bassin	—Belvédère in seepage water, in Mr. Béchard's canefield.
Quatre Bornes	—Foot of Corps-de-Garde Mountain, in drain.
"	—Foot of Candos Mt., in drains behind Mr. Carbonel's house, near Victoria Hospital.
"	—Foot of Corps-de-Garde Mt., in drain east of main drain almost opposite vegetable gardens.

Costalis

Beau Bassin	—Belvédère, in stagnant water, in Mr. Béchard's canefield.
"	—In street gutter, at junction of Colonel Maingard street with main Road.
"	—Main road, in gutter in front of Ah Leong's shop.
"	—Beau Bassin Prison, in ground tank, in vegetable gardens.
"	—In main road gutter, opposite Sibaly's premises.
"	—Barkly Asylum, in drain from manure pit.
"	—Barkly Street, stagnant water.
"	—Chébel, in mud pool, in canefield, near water reservoir.
Rose Hill	—In gutter, at Malartic street, near Mr. Louis Larcher's premises.
"	—Stanley, in anti-malarial drain.
Quatre Bornes	—Along Bassin Road, about a mile from junction with main road, in stagnant water, in Seesurrin's canefields.
"	—In seepage water in a canefield belonging to Dalaya Alligadoo at "La Louise."
"	—Foot of Candos Mt. in drain in a canefield belonging to Seeoonunun Dabybeen.
"	—Foot of Corps-de-Garde Mt., in seepage water, in canefield belonging to Catan Sellinbin.
"	—La Louise, in drain in front of Irah Dooraka's premises (along road to Victoria Hospital—1st bridge from junction with main road).
"	—In front of Victoria Hospital, in a small pool, in waste land belonging to Seeburuth.
"	—Near Cossigny Street, in anti-malarial drain feeder, in Ramkerbul Gooptun's canefield.
"	—Street gutter, behind Quatre Bornes Station (Sir William Newton Street).
"	—In bed of La Louise canal, in rock pools.
"	—Foot of Candos Mt., in drains behind Mr. Carbonel's house, near Victoria Hospital.
Forest Side	—Slaughter house.
"	—Slaughter house grounds, in hoof-holes.

Plague

The outbreak of human plague in Plaines Wilhems synchronised with the discovery of rat plague. The latter proved to be very extensive and as the epidemic extended into the current year, it will have to be referred to in further detail in next year's report.

The commencement was in October and human plague continued till the end of February.

Two estates were attacked, viz: Highlands (with Camp Fouquereaux) and Ebène—fortunately 3 and 2 cases respectively were all that occurred in them. In Ebène, many rats were found in store houses and quantities of fleas were found in gunny sacks and cereals.

The identification of the fleas, which were all *X cheopis*, I was able to ascertain through the great kindness of Dr. L. F. Hirst of Colombo, who supplied me with beautifully mounted types of rat fleas and his own monographs. *X Astia* has not so far been found.

Dr. Hirst's specimens and writings were shewn to other Medical Officers in the Colony.

The prophylactic measures besides disinfection, the liberal use of paraffin and soap emulsion on floors, segregation of patients and contacts and observation of neighbours, included vaccination and control of deaths.

With regard to vaccination, Dr. Barbeau demonstrated to me two interesting positive gland puncture smears of persons who had been vaccinated, which showed inclusion of plague bacilli in cells.

Over 100 deaths were controlled by spleen, liver and lung punctures. In 5 cases the disease had not been suspected or certified as plague during life.

The type of native hut and cowshed built of loose stone, walls and superstructure of thatch is a real menace in urban areas. Many plague rats were found in these buildings. There is no doubt that plague is really endemic in these places and recrudescences of human plague must occur under the conditions referred to.

Many orders have been served for shops and houses (concreting of floors and repairs to make rat proof) throughout the district, see tables attached.

ANNEXURE TO APPENDIX XXI

SCHOOL RETURNS—MIDLANDS AND CUREPIPE

Total No. of pupils examined	Persistent mouth breathers indicating adenoids or other nasal obstruction	Pupils having 4 or more decayed teeth	Enlarged spleen			High grade Anaemia	Congenital Syphilis	Scabies
			Large	Medium	Small			
42	...	7	...	...	1	...	...	2
227	4	15	1	1	2	2	...	...
235	8	34	...	1	1	2	2	...
192	4	42	...	...	3	...	...	...
318	5	33	...	1	1	...	...	9
112	3	21	1	...	...	...	...	2
365	...	25	...	...	2	...	...	...
1,491	24	177	2	3	10	4	2	13

PLAGUE CASES DETECTED IN PLAINES WILHEMS, 1923

(Including January and February, 1924 for sake of completeness to end of epidemic)

No. of cases in				Total
Rose Hill and Beau Bassin	Quatre Bornes	Vacoas	Curepipe	
20 4 persons contracted the disease in Lazaret while in observation.	20	2	Nil	42

RESULT OF PLAGUE CASES TREATED IN PLAINES WILHEMS, 1923.*

(* See note above)

Stations	Lazaret or Hospital	Cured	Died	Total	Remarks
R. Hill and B. Bassin (a) & (b) ...	5	5	10	20	(a) 4 persons contracted the disease in lazaret while in observation. (b) The result of cases sent to lazaret will be given by the M.O.H. Port Louis or by the Supt. of Hospital.
Quatre Bornes ...	9	...	11	20	
Vacoas ...	1	...	1	2	
Curepipe ...	Nil	Nil	Nil	Nil	
Total ...	15	5	22	42	

PREVENTIVE MEASURES TAKEN IN CONNECTION WITH PLAGUE, 1923.

Stations	No. of cases	No. of preventive inoculations	No. of premises disinfected	Remarks
Rose Hill & Beau Bassin ...	20	1,751	199	2 Estate Hospitals and 2 rows of huts. Include St. Joseph College.
Quatre Bornes ...	20	4,793	175	
Vacoas ...	2	579	53	
Curepipe ...	Nil	81	4	
Total ...	42	7,204	431	

ORDERS, NOTICES AND REQUESTS SERVED IN CONNECTION WITH PLAGUE MEASURES, 1923.

Stations	No. of orders served	No. of notices served	No. of requests served	Total	Remarks
Curepipe ...	81	1253	1597	2931	Orders were served to replace wooden floors by concrete and to abolish dirty cellars. This important plague measure is being continued as regards shops.
Vacoas ...	98	1148	807	2053	
Quatre Bornes ...	48	512	471	1031	
Rose Hill and B. Bassin ...	48	482	526	1056	
Total ...	275	3395	3401	7071	

NUMBER OF RODENTS DESTROYED IN PLAINES WILHEMS IN 1923.

Stations	No. of rodents caught				No. of blood exam- inations and results			No. of animals found dead	Result of examinations		
	Rats	Mice	Musk rats	Total	No. of examinations	Positive	Negative		Positive	Negative	Total
Curepipe	3,687	150	21	3,858	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Vacoas	3,400	291	Nil	3,691	97	2	95	Nil	Nil	Nil	Nil
Quatre Bornes	4,113	402	154	4,669	30	6	24	30	6	24	30
Rose Hill and Beau Bassin ..	4,952	973	404	6,329	94	10	84	15	2	13	15
Total ...	16,152	1,816	579	18,547	221	18	203	45	8	37	45

These figures will be added to in next year's report in detail.

NUMBER OF THATCH HOUSES BURNT IN PLAINES WILHEMS IN CONNECTION WITH PLAGUE IN 1923

Stations	Number of houses destroyed
Quatre Bornes	3
Rose Hill and Beau Bassin	5
Total ...	8

INFECTIOUS DISEASES IN PLAINES WILHEMS, 1923.

Disease	No. of cases in				Total
	R. Hill and B. Bassin	4 Bornes	Vacoas	Curepipe	
Enteric fever	15	11	3	19	48
Diphtheria	15	17	3	6	41
Septicæmia, Puerperal fever, Erysipelas	2	1	4	Nil	7
Cerebro-spinal fever	1	Nil	Nil	Nil	1
Measles	Nil	5	Nil	Nil	5
Whooping cough with enteritis	Nil	1	Nil	Nil	1
Total	33	35	10	25	103

RESULT OF INFECTIOUS DISEASES IN PLAINES WILHEMS. 1923.

Disease	Station	Lazaret or Hospital	No. of cures	No. of deaths	Total	Grand Total
Enteric fever	R. Hill and B. Bassin	5	7	3	15	...
do.	Quatre Bornes ... ..	...	10	1	11	...
do.	Vacoas	1	...	2	3	...
do.	Curepipe... ..	...	15	4	19	48
Diphtheria	R. Hill and B. Bassin	...	13	2	15	...
do.	Quatre Bornes ... ..	...	17	—	17	...
do.	Vacoas ... ..	...	3	—	3	...
do.	Curepipe... ..	...	5	1	6	41
Septicæmia, Pueperal fever, Erysipelas	R. Hill and B. Bassin	...	...	2	2	...
	Quatre Bornes ... ..	...	1	—	1	...
	Vacoas ... ..	...	...	4	4	7
Cerebro-spinal fever	Rose Hill ... ..	...	...	1	1	1
Measles	Quatre Bornes ... ..	...	5	—	5	5
Whooping cough with enteritis	Quatre Bornes ... ..	...	...	1	1	1
Total... ..	...	6	76	21	103	103

SEPTIC TANK INSTALLATIONS IN PRIVATE PREMISES AND ESTABLISHMENTS UNDER THE
NEW REGULATIONS, IN CONJUNCTION WITH DRAINAGE ENGINEER

Stations	No. of applications	Passed and completed	No. remaining to complete	Total
Curepipe	47	29	18	47
Vacoas	2	2	...	2
Quatre Bornes	12	12	...	12
Rose Hill and Beau Bassin	8	8	...	8
Total	69	51	18	69

APPENDIX XXII

SUMMARY OF WORK CARRIED OUT BY THE SANITARY ENGINEER FROM
1ST JANUARY TO DECEMBER 31st, 1923.

1. Abated 478 Municipal nuisances.
2. Repaired and strutted 142 pit latrines for poor people in Port Louis.
3. Repaired Ankylostomiasis Office at St. Pierre.
4. Constructed pit latrines etc. on Government Establishments.
5. Supervised and measured extents of cactus burnt in the half-mile zone in Port Louis.
6. Repaired Sanitation huts at Eau Coulée (Plaines Wilhems—Curepipe).
7. Assisted Health Officers of Plaines Wilhems and Black River on Anti-malarial works.
8. Made surveys.

APPENDIX XXIII

LEGISLATION.

LIST OF ORDINANCES, REGULATIONS &c. AFFECTING THE MEDICAL & HEALTH
DEPARTMENT PASSED DURING 1923.

ORDINANCES.

- No. 8 of 1923—To prohibit the cultivation, importation, sale or keeping of Gandia.
No. 21 of 1923—To amend the Building Consolidation Ordinance, 1915.
No. 27 of 1923—To regulate the practice of Veterinary Surgery.
(No. 32 of 1923—To provide for the numbering of houses and buildings in the Towns of Curepipe, Beau Bassin—Rose Hill and Quatre Bornes.)

PROCLAMATIONS.

- No. 9 of 1923—"Highlands" and "Camp Fouquereaux" hamlets to be Villages (under Building Consolidation Ordinance, 1915).
No. 16 of 1923—Tuberculosis Ward of Port Louis Civil Hospital to be part of Prison.
No. 27 of 1923—Nursing staff of Hospitals to be exempted from serving on the jury.

RULES AND REGULATIONS.

- G.N. No. 7 of 1923—Bathing and washing prohibited in Rivulet St. Louis (Flacq).
" " 8 of 1923—Bathing and washing prohibited in Rivulet Chevrettes (Flacq).
" " 63 of 1923—Bathing and washing prohibited in Rivière des Anguilles (Savanne).
" " 80 of 1923—Regulations for the supervision and control of Dhobies (Laundrymen) in the
& 333 of 1923—town of Curepipe.
" " 105 of 1923—Regulations applying Pit Latrines regulations (G.N. No. 315 of 1922) to part
of Moka District.
" " 113 of 1923—Regulations applying Pit Latrines regulations to Port Louis Extra Urban area.
" " 126 of 1923—Regulation applying Pit Latrines Regulations (G.N. No. 315 of 1922) to
Quatre Bornes and deleting Quatre Bornes from G.N. No. 198 of 1907.
" " 144 " —Regulation applying Pit Latrines Regulations (G.N. No. 315 of 1922) to parts
of Plaines Wilhems and Black River Districts.
" " 153 " —Regulation applying Pit Latrines Regulations (G.N. No. 315 of 1922) to
Grand Port District.
" " 162 " —Regulations fixing the charges for Night Soil Service performed by Government
in Port Louis (Extra Urban area), Mahébourg, Rose Belle, New Grove
and Mare d'Albert.
" " 167 of 1923—Regulations amending Regulations published under G.N. No. 210 of 1919, re;
Septic Tanks.
" " 169 " —Regulations for the Removal of house refuse and sweepings applied to the
towns of Beau Bassin—Rose Hill, Quatre Bornes, and Curepipe.
" " 170 " —Regulations re : Pit and Pail Latrines, repealing Regulations under G.N. No. 315
of 1922 and 105 of 1923, and part of those under G.N. No. 198 of 1907.
" " 171 " —Regulations applying G.N. No. 170 of 1923 to Moka and Grand Port Districts.

- G.N.No.172 of 1923—Regulations applying G.N. No. 170 of 1923 to Estates, as defined by Labour Law (1922).
- „ „ 183 „ —Regulations applying G.N. No. 170 of 1923 to Estates, as defined by Labour Law (1922), in Moka and Grand Port Districts, and repealing art. 1 of Regulations published under G.N. No. 172.
- „ „ 208 „ —Regulations applying G.N. No. 170 of 1923 to the Town of Port Louis and fixing the charges for Night Soil Service performed by Government.
- „ „ 215 „ —Regulation repealing regulations published under G.N. No. 6 of 1919.
- „ „ 216 „ —Regulations re : Disposal of Human Excreta, Trenching and Manure Factories.
- „ „ 230 „ —Regulations re . sale of Cakes and Provisions (Rodrigues).
- „ „ 254 „ —Regulation amending regulations published under G.N. No. 216 of 1923 re : Disposal of Human excreta.
- „ „ 265 „ —Regulation amending Regulations published under G.N. No. 170 of 1921 (General Tariff of charges levied at Government Hospitals and Dispensaries).
- „ „ 282 „ —Regulations applying G.N. No. 170 of 1923 to the District of Pamplermousses.
- „ „ 283 „ —Regulations applying G.N. No. 170 of 1923 to Estates (under Labour Law, 1922) in Pamplermousses district.
- „ „ 301 „ —Regulations declaring “ Measles ” a contagious and infectious disease under the Quarantine Consolidation Ordinance 1913.
- „ „ 323 „ —Regulation applying G.N. No. 170 to ~~the~~ the town of Beau Bassin and Rose Hill.

BILLS

Draft Opium Amendment Ordinance-read a first time at meeting of Council held on 11th September 1923 (Amendment of articles 14 and 15 of Ordinance No. 9 of 1913).

Draft Public Health Ordinance-read a first time at meeting of Council held on 4th December 1923.

APPENDIX XXIV

RECAPITULATION OF THE WORK PERFORMED BY THE MEDICAL & HEALTH DEPARTMENT IN 1923.

Re-Organisation of the Department.
 Soil Sanitation Campaign.
 Half mile neutral belt around town of Port Louis.
 Improvements to Hospitals.
 Opening of new Dispensaries.
 Drafting New Health Ordinance.
 Opening of Tuberculosis Dispensary (at Civil Hospital).
 Preparing Anti-Venereal Diseases campaign.
 Plague measures.
 Fumigation and disinfection.
 Inspection and Control of Food, Drugs, Markets and Milk.
 Abolition of “ Engrais.”
 Evacuation and Condemnation of Contaminated and Unfit buildings.
 Leper Asylum—Preparation of transfer of—to Powder Mills.
 Scavenging and Night Soil services (Extension of Dust Bins Regulations.)
 Training of Sanitary Inspectors and Guards.

APPENDIX XXV.

LEGAL POWERS WANTED IN MAURITIUS.

Stringent legal powers are required urgently in connection with :—

- Butcher's shops and Sale of Meat.
- Sale of Fruit and Vegetables.
- Sale of Milk and Dairies.
- Bakeries.
- Hair Dressing Rooms.
- Mattress Making.
- Laundry (Laundrymen or Dhobies).
- Bioscope Entertainments.

The Draft Public Health Ordinance was read a first time at a meeting of the Legislative Council held on the 4th December 1923 and it is proposed to push on with the Bill this Session of the Council.

The Draft Ordinance is divided into 14 parts as under :—

- I.—Preliminary.
- II.—Medical & Health Department.
- III.—Sanitation.
- IV.—(a) Infectious Diseases.
 (b) Formidable Epidemic Diseases.
- V.—Prevention of small-pox.

- VI.—Leprosy.
- VII.—Venereal Diseases.
- VIII.—Prevention and destruction of mosquitoes.
- IX.—Protection of Food-Stuffs.
- X.—Public Water Supplies, Meat, Milk and other articles of food.
- XI.—Hospitals.
- XII.—Cemeteries.
- XIII.—Cremation.
- XIV.—Miscellaneous.

The passing of this Ordinance will entail the repeal of 33 Ordinances affecting the Medical and Health Department.

APPENDIX XXVI.

STAFF

- Director**—T. B. GILCHRIST, M.D.; D.P.H.; F.R.F.P. & S.
- Assistant Director**—F. J. R. MOMPLÉ, M.B.C.M.; D.P.H. (Replacing Dr. Barbeau at the Bacteriological Laboratory until 1st October, 1923).
- Do.** —A. C. d'ARIFAT, L.R.C.P.; M.R.C.S. (Acting as Assistant Director until 30th June, 1923. Was appointed to act as Protector of Immigrants and Poor Law Commissioner from 1st July, 1923).
- Medical Officer of Health, Port Louis**—J. BALFOUR KIRK, M.B.; Ch. B.; D.P.H.; D.T.M. & H.
- Medical Officer of Health, Pl. Wilhems**—R. O. SIBLEY, M.D.; M.R.C.S.; L.R.C.P.; D.P.H.; D.T.M. & H.
- Superintendent, Bacteriological Laboratory and Govt. Analyst**—L. G. BARBEAU, M.B.; C.M.; D.P.H. (Was on Study-Leave until 1st October, 1923).
- Sanitary Warden (North)**—A. L. CASTEL, M.R.C.S.; L.R.C.P. (Retired from 10th December, 1923). (Dr. A. C. d'Arifat appointed in his stead, from 25th January, 1924).
- Do. (South)**—A. G. MASSON, M.B.; Ch. B.
- Port Health Officer & Medical Inspector of Port Louis Schools**—F. L. KEISLER, L.R.C.P. & S.; L.F.P. & S.; D.P.H.
- Superintendent, Lunatic Asylum**—L. VINSON, M.D. (Provisional). (J. Dyson, M.B.; B.S.; D.P.M.; M.R.C.S.; L.R.C.P. appointed as Superintendent. Embarked on 30.1.24 and assumed duty on 4.3.24).
- Superintendent, Civil Hospital**—F. A. ROUGET, M.D.
- Resident Surgeon, Civil Hospital**—G. SENEQUE, M.D.
- Superintendent, Victoria Hospital**—E. L. de CHAZAL, M.D.
- Resident Medical Officer, Victoria Hospital**—W. R. DUPRE, L.R.C.P. & S. (Dr. de Chaumont held this appointment until 31st July, 1923).
- Police and Prison Surgeon, Port Louis and District (Govt.) Medical Officer and Sanitary Authority for Black River**—PH. de CHAUMONT, M.B.; B.S.; M.R.C.S.; L.R.C.P.
- Govt. Medical Officer, Plaines Wilhems**—E. F. BOUR, L.R.C.P.; M.R.C.S.; L.S.A.

DISTRICT MEDICAL OFFICERS (GOVT. MEDICAL OFFICERS HAVING CHARGE OF A DISTRICT HOSPITAL AND OF ALL THE DISPENSARIES IN THEIR DISTRICT).

- Pamplemousses**—M. S. H. CAMAL BOUDOU, L.R.C.P. & S.; L.F.P. & S.
- Rivière du Rempart**—S. PIARROUX, L.R.C.P. & S.; L.F.P. & S. (Provisional).
- Flacq**—H. G. LAMBERTY, L.R.C.P. & S.; L.F.P. & S. (Provisional).
- Grand Port**—A. Y. CANTIN, M.R.C.S.; L.R.C.P.; D.T.M. (Dr. E. PORTAL, L.R.C.P. & S., retired on 31.7.23.)
- Savanne**—B. A. SINNATAMBOU, Dip. R.C.P. & S. and Dip. F.P. & S.
- Moka**—G. A. LÉCLÉZIO, M.R.C.S.; L.R.C.P.; D.P.H. (Dr. LÉCLÉZIO is relieved from charge of Pailles Dispensary).

INDIAN MEDICAL OFFICERS.

- Officer in charge of Port Louis Dispensaries**—D. I. ABRAHAM, L.M.F.
- Officer in charge of Pailles Dispensary and Relief Officer**—P. C. SENGUPTA, L.M.F. (Appointment terminated from 1.6.24 for grave incompetency).

APPENDIX XXVII.

CHANGES IN STAFF DURING THE YEAR

- Dr. Gilchrist who proceeded on leave to South Africa, in October 1922, and was replaced by Dr. D'Arifat, resumed his duties in January 1923.
- Dr. Barbeau resumed his duties on the 2nd October 1923.
- Dr. Chasteauneuf (Government Medical Officer for Black River) died at Paris on the 28th March, 1923.
- 4 Indian Medical Officers resigned during the year (R. C. Sen Gupta, M. C. Roy, N. C. Das and H. G. Austin).

Mr. Naz, Sanitary Engineer, having been seconded for work under the Director of the Public Works, in connection with the erection of the Chlorination Plant for Grand River North West Water Supply, Mr. F. J. Parsons of the Survey Office has discharged the duties of the office.

Dr. Castel retired on the 10th December, 1922.

The re-organization of the Department led to the termination of employment of the following Dispensary Medical Officers:—

Drs. Guérin, Lesur, Harel, David and de Robillard and to the retirement of Drs. E. Portal and L. Vinson, from 1st August 1923.

Dr. Vinson was re-employed provisionally as Superintendent, Lunatic Asylum, pending the assumption of duty by Dr. Dyson who was granted a scholarship from the Government Scholarship Fund for qualifying in Psychological Medicine.

APPENDIX XXVIII.

ANNUAL REPORT OF THE BACTERIOLOGICAL LABORATORY FOR THE YEAR 1923

The number of specimens and articles received at the Bacteriological Laboratory during the year 1923 totalled 3,014 showing an increase of 1,164 on the number for the preceding year. They may be classified as before, for facility of discussion, under the following heads:

I.—CLINICAL.

The samples coming under this head, exclusive of vaccines, amounted to 2,356. Of these 203 were submitted to bacteriological examination involving cultures and animal tests when required. The materials dealt with comprised blood, throat swabs and false membranes, sputum, fæces, pus and pathological exudations, urine, cerebrospinal fluid, neoplastic growths &c.

(a) *Blood*.—1,077 samples were examined.

Malaria.—217 samples came in for this disease. Parasites were found in 21 cases as follows:

Subtertian	...	...	in 11
Tertian	...	...	in 9
Quartan	...	...	in 1

Filariasis.—18 samples were examined for filaria embryos; microfilaria bancrofti was found in 4.

Plague.—Plague bacilli were discovered in 4 out of 11 smears of gland or spleen juice from suspected cases. None were found in a sample of blood from a similar case.

Typhoid and the paratyphoids.—These diseases accounted for 350 specimens. 288 of these were submitted to Widal's test for agglutinin with positive results (1 in 30 and higher dilutions) in 92 cases. Blood culture on bile-salt broth was done in 72 other cases with success in 14.

Syphilis.—261 samples were tested for the Bordet-Wassermann complement fixation reaction. Positive findings were obtained in 92 and doubtful ones in 66 instances. The antigen used is prepared from human heart muscle.

Blood counts.—93 differential leucocyte counts were made and one red corpuscle count.

Chlorides and Urea.—One sample was sent in for a quantitative estimation of chlorides and 89 for a quantitative estimation of urea.

Malta fever.—Agglutinins for *M. Melitensis* were looked for in the blood of a patient suspected to be affected with this complaint but the reaction proved negative.

Bacteriological examinations.—Of the 75 cases in which a blood culture was made

14	yielded	<i>bacillus Typhosus</i>
7	„	<i>Streptococci</i>
4	„	<i>Staphylococci</i>
2	„	<i>Bac. Coli Communior</i>

(b) *Throat and nasal swabs* were received on 72 occasions. The Klebs-Löffler diphtheria bacillus was found on 36 and Vincent's fusiform organism on 13, with or without other bacterial associations.

(c) *Sputum*.—Samples received 168. Examined principally for Koch's tubercle bacilli and pneumococci. The former were present in 37 and pneumococci in predominating numbers in 4.

(d) *Pus*.—Number of samples 78. The materials were derived from abscesses, boils or were specimens of urethral or vaginal discharges. Gonococci were found in 3, while 12 samples of closed abscesses proved sterile. Of the 28 specimens that were successfully cultured, 21 gave staphylococci and 7 streptococci.

(e) *Cerebro-spinal Fluid*.—Specimens examined 29; 4 came in for a Wasserman test of which two gave positive results; the colloidal gold reaction was applied to 7 others, positive in 6 instances; a leucocyte count was made with 3 samples while 3 others were tested quantitatively for albumen and one for glucose. Eleven more were examined for their bacterial contents: 4 showed pneumococci and one meningococci. 6 were free from micro-organisms.

(f) *Pleural Fluid*.—Four samples were received, 2 for cytological study and a leucocyte count and two for bacteriological investigation. From one of these a streptococcus was isolated.

(g) *Cystic Fluid*.—The liquid contents of a cystic tumour of the foot were examined and cultured without results.

(h) *Bile*.—A sample was tested for micro-organisms of the typhoid group, with negative results.

(i) *Hydrocele Fluid*.—Search was made unsuccessfully for filaria embryos in the tappings from a case suspected to be of filarious origin.

(j) *Synovial Fluid*.—No micro-organisms could be demonstrated either by microscopical examination or culture in a case of synovial effusion.

(k) *Hairs*.—A number of specimens were received and examined for fungi.

(l) *Fæces*.—Samples 448—*Amoeba histolytica* present in 40. The following table shows the rate of frequency with which other entozoa were found in the course of these examinations :

Trichuris	...	...	...	...	... on 293 occasions
Ankylostome	...	...	...	...	... on 145 "
Ascaris	...	...	...	...	.. on 125 "
Trichomonas	...	...	...	...	... on 24 "
Blastocystis	...	...	...	...	... on 18 "
Lamblia	...	...	...	...	... on 14 "
Anguillula Stercoralis	...	...	...	...	... on 9 "
Oxyuris	...	...	...	...	... on 1 "
Coccidia	...	...	...	...	... on 1 "

The coccidia were found in diarrhoeic stools in association with no other known pathogenic organism. No alternate cause could be found for the recurrent attacks of diarrhoea from which the patient was suffering and there seemed to be good grounds for incriminating the coccidia. In fresh stools only cvoid oocysts were seen with undifferentiated granular contents but after standing for a few days the oocysts were found to have developed two sporocysts containing 4 sporozoits each. In short the organism closely resembled the sexual form of *Isopora Hominis*. Treatment proved of no effect. It is the first case of human intestinal coccidiosis registered at this laboratory. The patient had been abroad some time previously so that the infection may have been acquired out of the Colony.

Six samples of stools were cultured ; from 2 bac. coli communis (Escherich) and from a third bac. coli communior, were isolated.

(m) *Urine*.—413 analyses were made. Most of these consisted of the usual routine clinical procedures, chemical and microscopical, but in 67 cases the centrifuged sediments were cultured with the following results :

Staphylococci were isolated from 15 specimens

Bac. coli communis	..	15	..
Bac. lactis aerogenes	..	3	..
Bac. coli communior	..	6	..
Bac. paracoli	..	1	..
Streptococci	..	1	..
A Diphteroid bacillus	..	1	..
A Gram Negative unindentified organism from		1	..
Sterile		24	..

Microscopical examination of the sediments also showed :

Eggs of schistosoma hæmatobium	in 29 cases
Hyaline casts	28 ..
Granular casts	25 ..
Waxy casts	1 case
Filaria embryos	1 ..
Gonococci	2 cases
Trichomonas	3 ..

(n) *Neoplasms*.—Sixteen specimens were cut and sections examined. They consisted of :

Fibroma	...	..	2	Epithelioma (squamous)	...	4
Fibro-Sarcoma	...	..	1	Papilloma	...	1
Sarcoma	...	..	4	Bilharzia polypus	..	1
Myxoma	...	..	1	Salivary gland (normal)	...	1
Carcinoma	...	..	1			

In addition, portions of muscle tissue were also examined for trichinæ with negative results and sections were made of the heart muscle, kidney and lung in a case where fatal poisoning with carbon tetrachloride was suspected.

(o) *Catgut*.—Complaints having arisen regarding the quality of the catgut supplied to the hospitals, an investigation was undertaken by this laboratory in the course of which 8 different specimens were bacteriologically examined, all but two of which showed contamination with a spore-bearing bacillus or a small gram negative organism, or with both.

II.—VACCINE.

(a) *Prophylactic Vaccines*.—Antityphoid and T.A.B. vaccines were prepared as before for prophylactic purposes and issued free of charge. 866 applications were received for the former but the demand for the compound vaccine was much smaller being limited to 180 persons.

(b) *Therapeutic Vaccines*.—The following auto-vaccines were prepared :

From blood :	With Bac. coli communior	...	...	...	4
	.. Bac. Typhosus	...	..	...	5
	.. Streptococci	...	...	...	5
From Urine :	.. Bac. coli communis	...	...	...	7
	.. Bac. coli communior	...	...	...	3
	.. Bac. lactis aerogenes	...	...	...	2
	.. Bac. paracoli	..	...	...	1
	.. Staphylococci	...	...	...	1
From Pus :	.. Staphylococci	..	...	...	19
	.. Streptococci	...	...	...	1
From Fæces :	.. Bac. coli communis	...	...	...	1
	.. Bac. coli communior	...	...	...	1

III.—PUBLIC HEALTH.

A total of 385 samples of foods, drinks and drugs were chemically analysed in the course of the year, showing an increase of 227 over the number for 1922, viz. : 158. The number for 1921 was 115. These figures, which speak for themselves, demonstrate the rapidly increasing importance of the chemistry division of this Institution. The substances received for analysis were as follows :

	No. of Samples.	No. of Cases.	From whom received.
Milk	280	in 111	Medical and Health Dept.
Water (pollution of rivers)	13	„ 5	do. do.
Water (fitness for domestic use as to hardness) 1	1	„ 1	do. do.
Groundnut oil	1	„ 1	do. do.
Brandy	2	„ 1	do. do.
Bread	1	„ 1	do. do.
Salt beef	2	„ 2	do. do.
Rum	1	„ 1	do. do.
Sardines	1	„ 1	do. do.
Opium	44	„ 6	Police Department
Gandia	17	„ 3	Revenue Department
Wine	17	„ 3	do.
Carbon tetrachloride	5	„ 5	Ankylostomiasis Dept.

In addition 19 samples of water were bacteriologically examined. Twelve of these came from the Mare-aux-Vacoas, two from Monneron River dam and one from Montagne Perruche stream. They were examined from the point of view of their suitability for drinking purposes—The remaining four examinations dealt with samples of vacuum-pan and triple effets waters and were undertaken at the request of the Rivers Pollution Commission.

Spleen smears from 17 rats were examined for the Sanitary Authorities with positive findings as to plague in 2 instances.

IV.—MEDICO-LEGAL.

The articles of evidence, organs, substances &c., referred by the Judicial Authorities at the request of the Police Dept. during the twelve months covered by this report totalled 180 against 179 in 1922. They were connected with the following offences :

Rape	110 articles in 19 cases
Infanticide	1 „ 1 case
Wounds and blows	10 „ 4 cases
Poisoning	6 „ 3 „
Murder	30 „ 8 „
Sodomy	9 „ 2 „
Attempt at chastity	6 „ 1 „
Bestiality	5 „ 1 „
Larceny	3 „ 1 „

V.—RESEARCH.

Work done under this head comprised :

- A continuation of previous searches for the intermediate host of schistosoma haematobium in Mauritius.
- The application of micro-spectroscopy to the determination of blood stains for medico-legal purposes.
- A study of human intestinal coccidiosis.

VI.—ADMINISTRATION.

The fees collected at the Bacteriological Laboratory (irrespective of the sums paid at the Central Office or at the Treasury) for work done on behalf of private parties amounted to Rs. 7,675.68cs.

I returned from leave of absence on the 1st of October and resumed my duties as Superintendent and Government Analyst on the following day.

I avail myself of this opportunity of placing on record my acknowledgment of the able manner in which the work of the Institution was carried on during my absence by Dr. Momplé and the Laboratory staff.

Mr. Maya, Asst. Superintendent, left in his turn on study leave in November 1923 with a grant from the Govt. Scholarship Fund and his duties are being performed by Mr. L. Masson.

Mr. R. Avise du Buisson was appointed Laboratory Assistant from the 16th of December and was assigned duties in the Chemistry Division.

Of the 3 Students trained during the year, one is at present doing duty at the Laboratory as Ag. Scientific Assistant while the other two are already proving useful in other branches of the Department.

L. G. BARBEAU,
Superintendent, Bact. Laboratory and Govt. Analyst.

APPENDIX XXIX

MEDICAL PRACTITIONERS

During 1923 the following Medical Practitioners produced their diplomas at the Office and were authorised to practise Medicine and Surgery in the Colony :—

J. HERMANN ANDRÉ—M.R.C.S. (Eng :) ; L.R.C.P. (Lond :)—1922.
P. ROGER CHEVREAU—M.R.C.S. (Eng :) ; L.R.C.P. (Lond :)—1914.
HENRI T. LEVIEUX—M.R.C.S. (Eng :) ; L.R.C.P. (Lond :) ; M.B. ; B.S. ; D.T.M.
PHILIPPE COUACAUD—M.R.C.S. (Eng :) ; L.R.C.P. (Lond :) ; D.T.M.
J. RENALD LAVENTURE—M.D. (Montpellier)—1923.

DENTISTS

During 1923 the undermentioned Dentist produced his diploma at the office and was authorized to practise Dental Surgery in the Colony :—

RUDOLF VAN GEUNS—Licentiate in Dental Surgery, R.C.S. (Eng :)—1922.

PHARMACISTS.

Mr. J. RAOUL LAMALÉTIÉ, holder of a certificate from the Chairman of the Board of the Pharmaceutical Society of Great Britain (1922) caused his name to be registered in January 1923.

Mr. J. NOÉ PERDREAU, holder of a Colonial Diploma as Pharmacist (1922), caused his name to be registered in March, 1923.

Messrs. FERNAND MARGEOT and GASTON DARNÉ qualified as Pharmacists (Pharmacy Ordinance, 1912) at an examination held in April and May 1923.

ASSISTANT PHARMACISTS.

Mr. LÉONEL NADEAU has, by a commission, been authorized to practise in the Colony as Assistant Pharmacist.

Messrs. J. AUGUSTE AH-KONG and RAYNAL BELLEROSÉ qualified as Assistant Pharmacists (Pharmacy Ordinance, 1912) at an examination held in April and May, 1923.
